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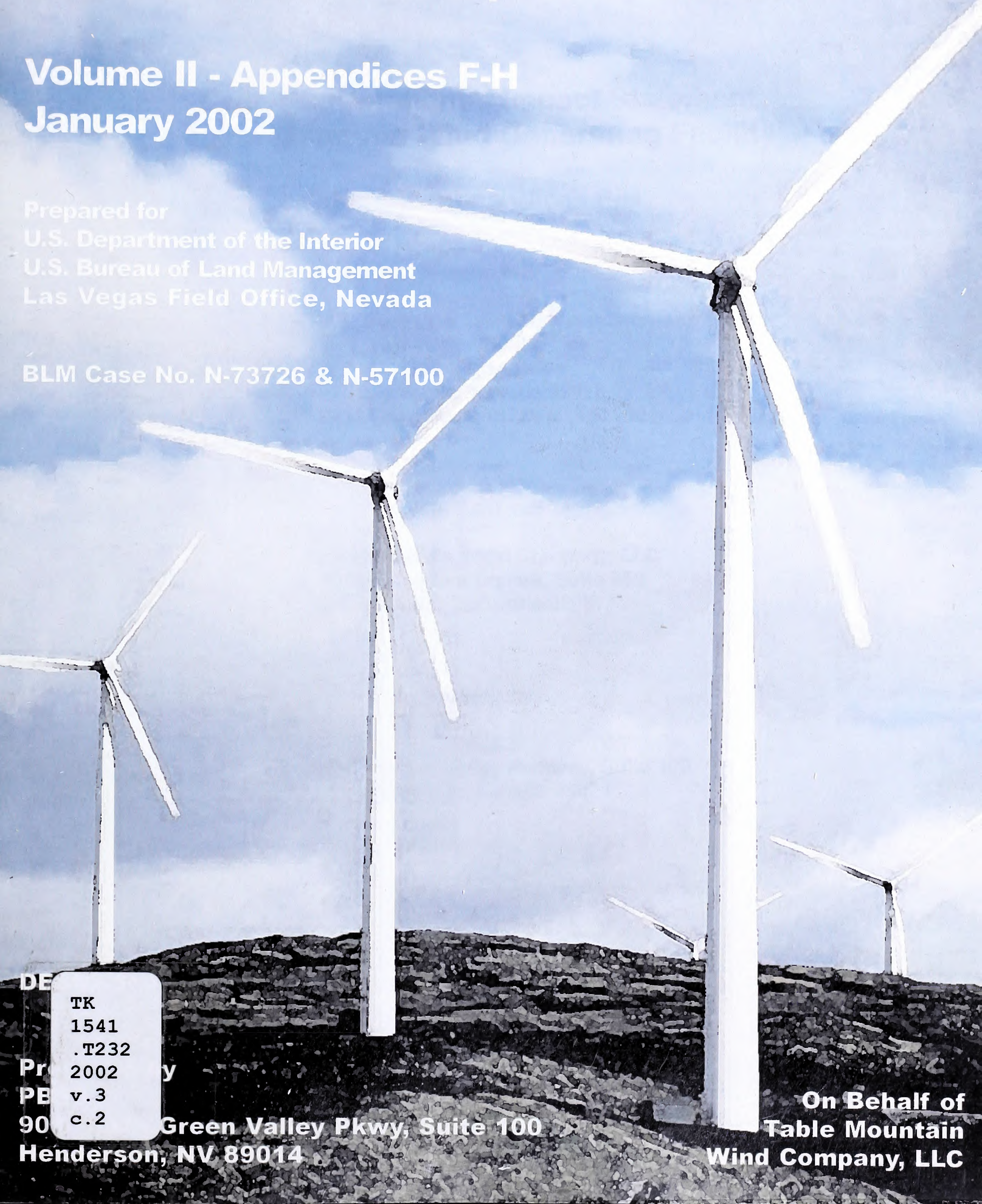
T ain Wind Generating Facility
Draft Environmental Impact Statement

Volume II - Appendices F-H
January 2002



Prepared for
U.S. Department of the Interior
U.S. Bureau of Land Management
Las Vegas Field Office, Nevada

BLM Case No. N-73726 & N-57100

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Pr y
PB
90 Green Valley Pkwy, Suite 100
Henderson, NV 89014

On Behalf of
Table Mountain
Wind Company, LLC

#48910182

ID 88067426

TK
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2002
v.3
c.2
(misprinted
as Vol.2
should be
Vol.3)

Draft Environmental Impact Statement
Table Mountain Wind Generating Facility

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Prepared for

U.S. Bureau of Land Management
Las Vegas Field Office
4765 Vegas Drive
Las Vegas, Nevada 89018
BLM Case No. N-73726 & N-57100

On Behalf of

Table Mountain Wind Company, LLC
4225 Executive Square, Suite 950
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Henderson, Nevada 89074

January 2002

PBS&J Job No. 511339.00

TABLE OF CONTENTS

Appendices

Page

F Transportation and Circulation F-1

G Hazardous Material G-1

H Visual Resources H-1

Appendix F

Transportation and Circulation

1

EXECUTIVE SUMMARY

The purpose of this traffic study is to determine and analyze the traffic impacts imposed on the surrounding roadway network by the proposed construction and operation of the Table Mountain Wind Power Project. The proposed project will be located approximately 28 miles southwest of Las Vegas at the south end of the Spring Mountain Range between the communities of Goodsprings and Sandy Valley, Nevada.

The proposed 120 mega-watt wind powered electric generation facility and ancillary facilities is intended for construction on approximately 500 acres on Bureau of Land Management property. It is anticipated that the project will be in operation by December 31, 2002. Construction of the project is expected to take 240 days. During operation, fewer than 30 workers would be required to operate and maintain the turbines and associated facilities on a daily basis.

Level of Service (LOS) analyses were conducted for existing and future traffic flows at the intersections of Interstate Highway 15 (I-15) at State Route 161 (SR-161), and SR-161 at Sandy Valley Road using techniques described in the 1997 Highway Capacity Manual. Results of the analysis show that the intersections are currently operating at acceptable levels of service and that the study intersections will continue to operate at acceptable levels of service under construction traffic conditions, and years 2002 and 2022 traffic conditions with the addition of site traffic. No future mitigation is required to maintain acceptable operating levels of service.

The impacts associated with the construction of the project are expected to be minimal. The additional traffic associated with the construction of the project will not cause the study area intersections to deteriorate to unacceptable levels of service.

2

INTRODUCTION

Purpose

The purpose of this traffic study is to determine and analyze the traffic impacts imposed on the surrounding roadway network by the proposed construction and operation of the Table Mountain Wind Power Project. The proposed 120-megawatt wind powered electric generation facility and ancillary facilities will be located approximately 28 miles southwest of Las Vegas, Nevada. The proposed project will be located at the southern end of the Spring Mountains between the cities of Goodsprings and Sandy Valley in southern Clark County, Nevada. Access to the area is provided by Interstate Highway 15 (I-15), State Route 161 (SR-161), and a Clark County road that passes through Sandy Valley (Sandy Valley Road). Access to the wind power facilities will be provided by proposed and existing dirt roads throughout the area.

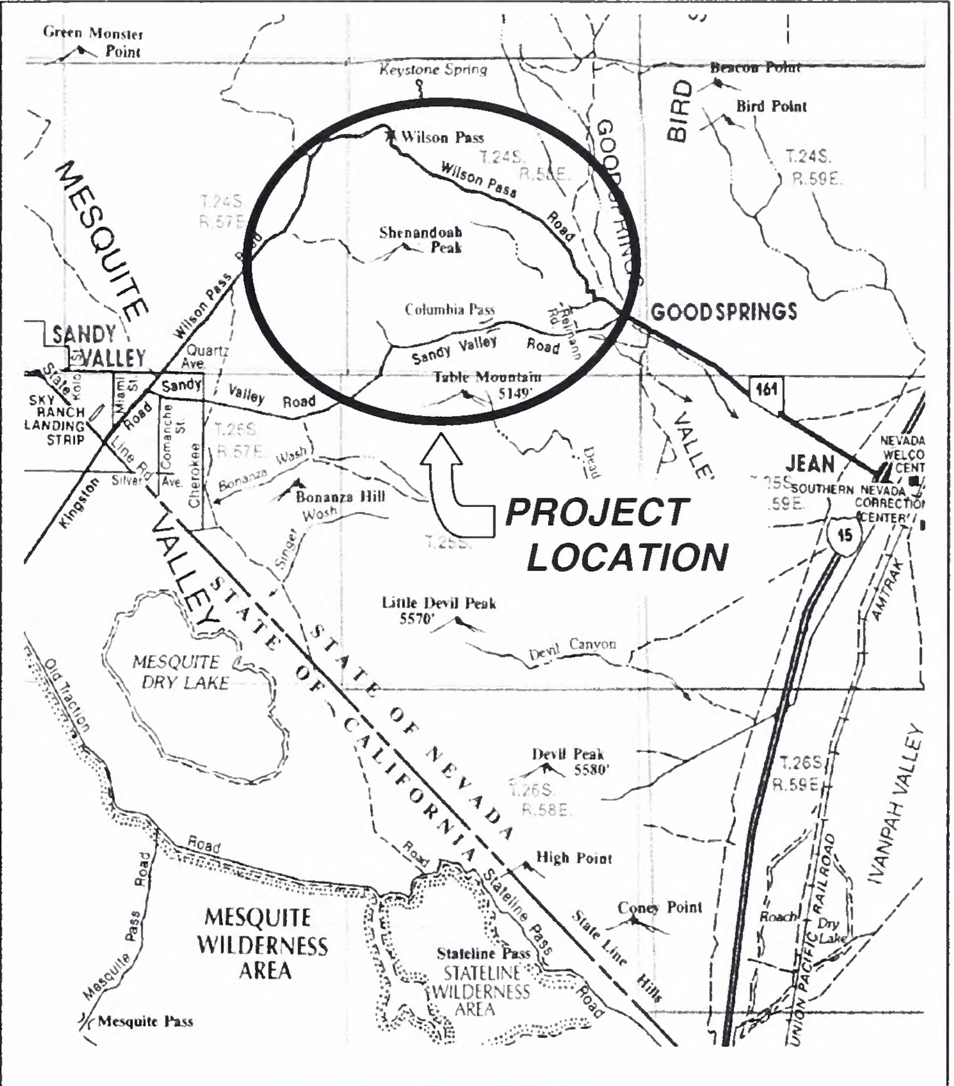


Figure 1: Vicinity Map

This study analyzes existing conditions, conditions at build out which is expected to occur in year 2002, as well as conditions 20 years from time of build out. This report discerns peak traffic conditions, describes the existing and proposed roadway network, forecasts and distributes future traffic volumes and estimates the effect of additional traffic generated by the proposed site. Impacts relative to increased traffic due to the development have been identified, and no mitigation will be required to sustain anticipated traffic volumes.

Description of Project

The proposed 120 megawatt wind powered electric generation facility and ancillary facilities is intended for construction on approximately 500 acres of federal land. The site is located in Section 13 of Township 24 South, Range 57 East; Sections 5-8, 18, 19, 30, 33 and 34 of Township 24 South, Range 58 East; and Sections 2-5, 9-11, 15, 16 and 22 of Township 25 South, Range 58 East, on the Cottonwood Pass, Potosi, Shedandoah Peak, and Goodsprings, U.S. Geological Survey 7.5-minute quadrangle maps. During operation, fewer than 30 workers would be required to operate and maintain the turbines and associated facilities on a daily basis.

Scope of Study

Included in the scope of the study is a review of existing and proposed roadway operations, proposed weekday peak hour traffic conditions expected at the time of build out in year 2002, and peak hour traffic conditions expected in year 2022. Access to the area will be provided by Interstate Highway 15 (I-15), State Route161 (SR-161), and a Clark County road that passes through Sandy Valley (Sandy Valley Road). Level of service (LOS) were examined for the intersections of I-15 Westbound/SR-161, I-15 Eastbound/SR-161, and SR-161/Sandy Valley Road.

Peak hour traffic counts were conducted at the aforementioned intersections on April 26, 2001 between the hours of 7:00 – 9:00 a.m. and 4:00 – 6:00 p.m.. The counts can be found in Appendix A.

3

EXISTING CONDITIONS

Existing conditions in the vicinity of the site were observed and evaluated, and relevant data including lane configuration, traffic controls, and peak generator hour traffic counts was obtained. Current and future traffic characteristics and levels of service at the intersections impacted by the site have been determined by these existing conditions.

Roadway Network

Access to the area is provided by Interstate Highway 15 (I-15), State Route 161 (SR-161), and Sandy Valley Road. Access to the facilities will be provided by existing dirt roads throughout the area which currently provide access to microwave towers, radio towers, a weather station, transmission lines and numerous mining claims. Existing and proposed roads providing the internal access network will be upgraded to Bureau of Land Management road standards to provide access for construction, operations, and maintenance activities. The existing roadway network, intersection geometry, and intersection control at the intersections impacted by the site are illustrated in **Figure 2**.

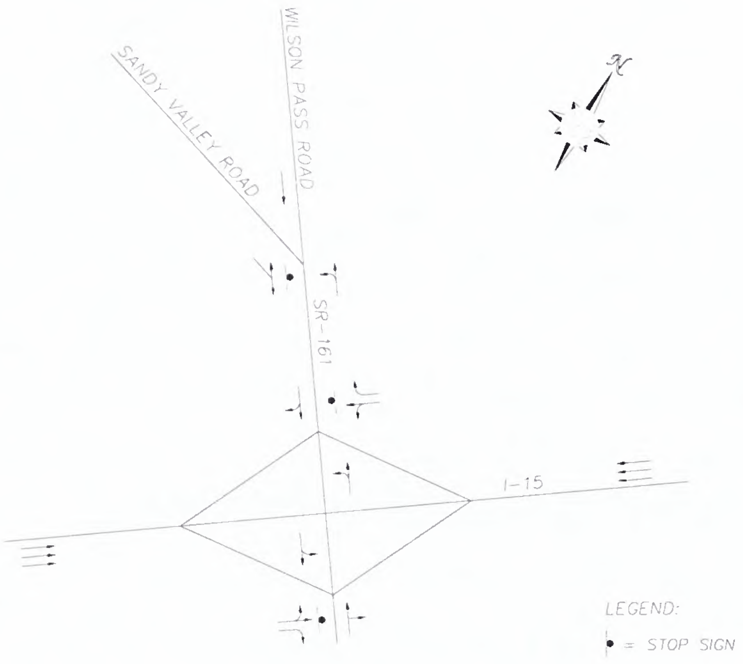


Figure 2: Existing Roadway Network and Intersection Geometry

The existing intersection of SR-161/Sandy Valley Road is a 3-leg, stop controlled intersection with stop control on the south approach. The south approach consists of a shared left/right turn lane. The south approach consists of a shared left/through lane. The north approach consists of a shared through/right turn lane.

The existing intersection of I-15 Southbound/SR-161 is a 3-leg, stop controlled intersection with stop control on the north leg (I-15 southbound off-ramp). The north approach consists of a shared left/through lane and a separate right turn lane. The west leg consists of a shared through/right turn lane and the east leg consists of a shared left/through turn lane.

The existing intersection of I-15 Northbound/SR-161 is a 3-leg, stop controlled intersection with stop control on the south leg (I-15 northbound off-ramp). The south approach consists of a shared left/through lane and a separate right turn lane. The west leg consists of a shared left/through turn lane and the east approach consists of a shared through/right turn lane.

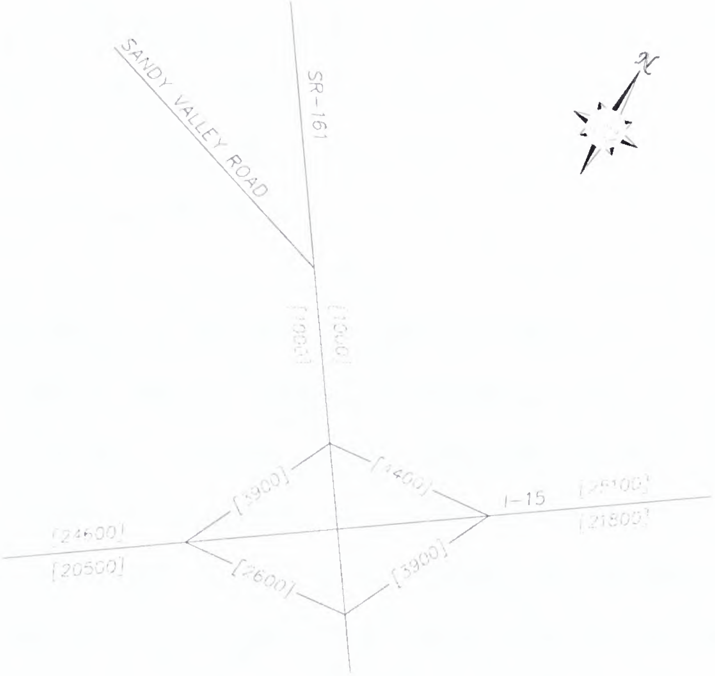


Figure 3: 2000 Average Daily Traffic Volumes

Average Daily Traffic Volumes

Average weekday traffic volumes were obtained from the Nevada Department of Transportation's 1999 Annual Traffic Report and from counts taken in March of 2000. These volumes were used in determining the growth trend for the area of the site. The area wide average growth per year of 2.95% was incorporated into the existing counts to establish anticipated future traffic volumes at build out of the site. Growth rate calculations can be found in Appendix A. **Figure 3** shows the 1999 average daily traffic volumes on the study area roadways.

Weekday Peak Hour Traffic

Peak hour traffic counts were conducted on April 26, 2001, during the a.m. and p.m. peak weekday period and are illustrated in **Figure 4**. These peak hour counts will be utilized in assessing roadway capacities and level of service at the intersections of SR-161/Sandy Valley Road, I-15 Southbound/SR-161, and I-15 Northbound/SR-161.

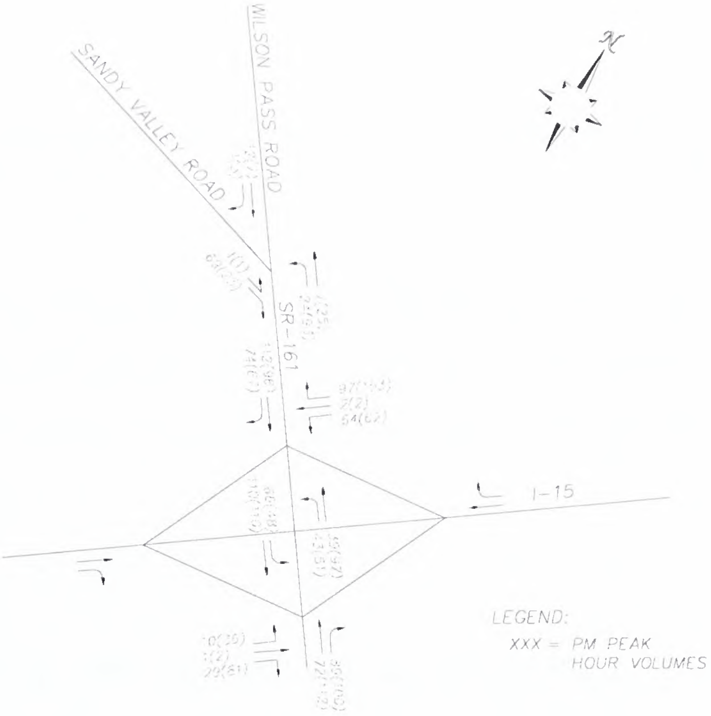


Figure 4: Existing Peak Hour Traffic Volumes

Existing Intersection Levels of Service

Level of service (LOS) is a rating system commonly used in traffic engineering to measure the effectiveness of the operating conditions of roadways and intersections. Several variables that affect the quality of traffic flow include factors such as: speed, travel time, vehicular delays, traffic interruptions, and the freedom to maneuver. Generally, there are six levels of service ranging from "A" to "F". Level "A" is defined as being ideal flow conditions with little or no delays whereas level "F" is defined as conditions where extreme delays may be encountered necessitating mitigation. Each level is used to describe traffic flow in terms of delays experienced by the motorists (see Appendix B for LOS definitions and existing level of service calculations).

LOS analyses were conducted for existing traffic flows at the intersections of SR-161/Sandy Valley Road, I-15 Southbound/SR-161, and I-15 Northbound/SR-161 using techniques described in the 1997 Highway Capacity Manual. Results of the analysis show that all of the intersections are currently operating at acceptable levels of service.

For easy comparability against future conditions, LOS findings are presented in **Table 2** found in Chapter 5 of this report.

4

TRIP GENERATION AND DISTRIBUTION

Trip generation and distribution are both tools used to assess increased roadway volumes caused by site generated traffic. These two techniques aid in determining the level of impact at specific intersections. The trips generated from the site are distributed according to existing and future attractions in the nearby communities in the vicinity of the proposed development.

Projected Trip Generation

Data on trip generation rates for wind powered electric generation facilities and ancillary facilities is not available from the Institute of Transportation Engineers Trip Generation, Sixth Edition. During operation, fewer than 30 workers would be required to operate and maintain the turbines and associated facilities on a daily basis. For analysis purposes a worst case scenario was assumed where all thirty workers would enter the site during the a.m. peak period and exit the site during the p.m. peak period with an auto occupancy rate of 1.0.

Directional Distribution of Future Trips

The directions by which vehicles approach or leave the proposed site has been deduced from a review of the local roadway network and the investigation of existing and future attractions. Based on these factors, the distributions in **Figure 5** were assumed for the site generated trips at build out. The trip assignment diagram is shown in **Figure 6**.

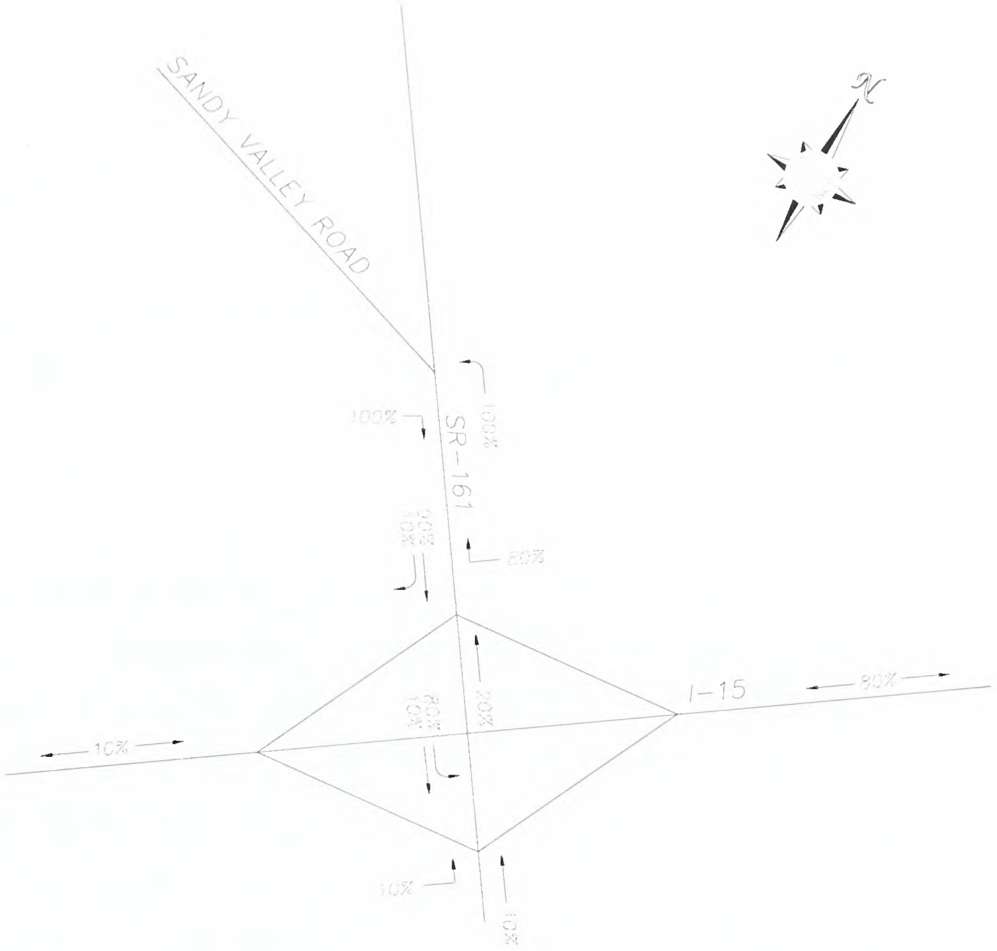


Figure 5: Trip Distributions

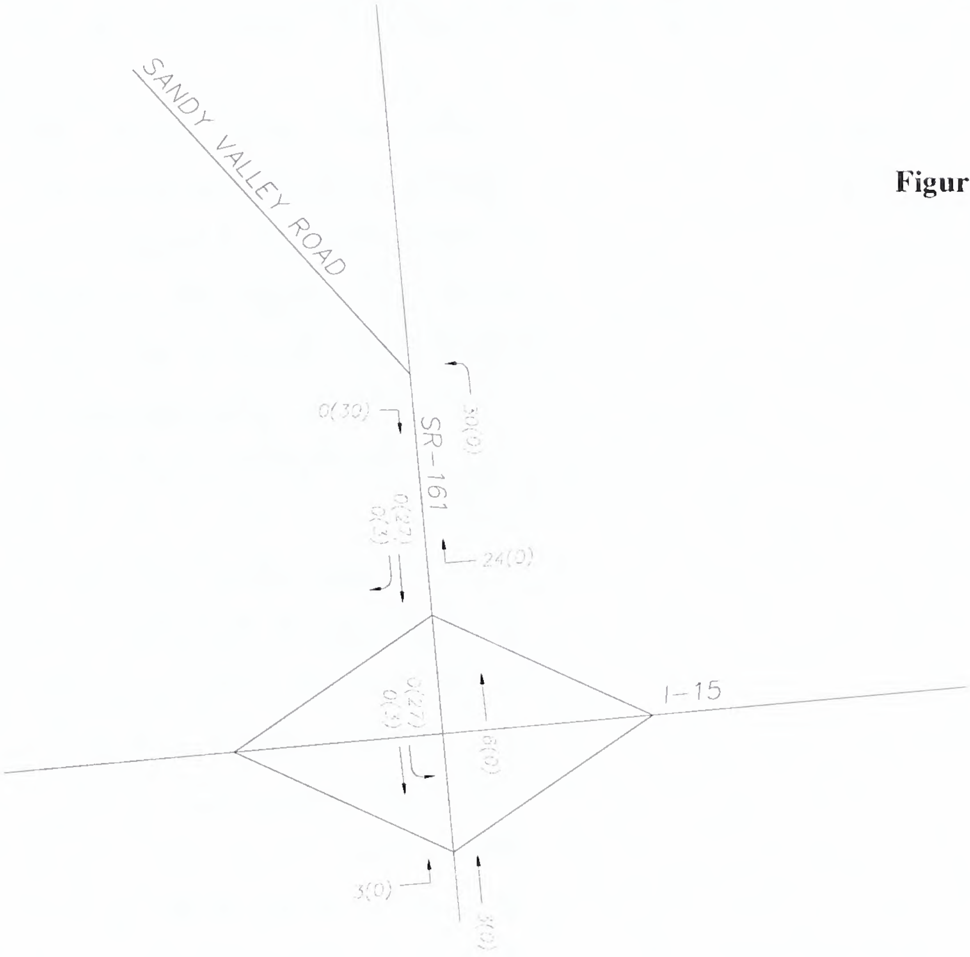


Figure 6: Trip Assignments

5

FUTURE TRAFFIC CONDITIONS

The future level of service determines whether or not the intersections under investigation are efficient at the time of build out. This analysis compares the efficiency of the intersections at build out as well as 20 years into the future.

Anticipated Traffic Volumes

Future traffic volumes in the vicinity of the site were estimated in order to determine anticipated traffic impacts on the roadway network by the proposed wind power site. An area wide average growth per year of 2.95% was estimated based on average daily traffic volumes from permanent count stations maintained by NDOT. From this percentage, a growth factor of 1.05 was calculated and applied to the existing traffic volumes shown previously in **Figure 4**.

The future peak hour traffic volumes at time of build out for the study intersections are presented in **Figure 7.** The proposed site traffic was added to the future year 2002 background traffic and the results are illustrated in **Figure 8**.

A 20-year growth factor of 1.86 was calculated and applied to the existing traffic volumes shown previously in **Figure 4** and the site traffic was then added. The future year 2022 peak hour traffic volumes for the study intersections are presented in **Figure 9.** Growth rate calculations can be found in Appendix C.

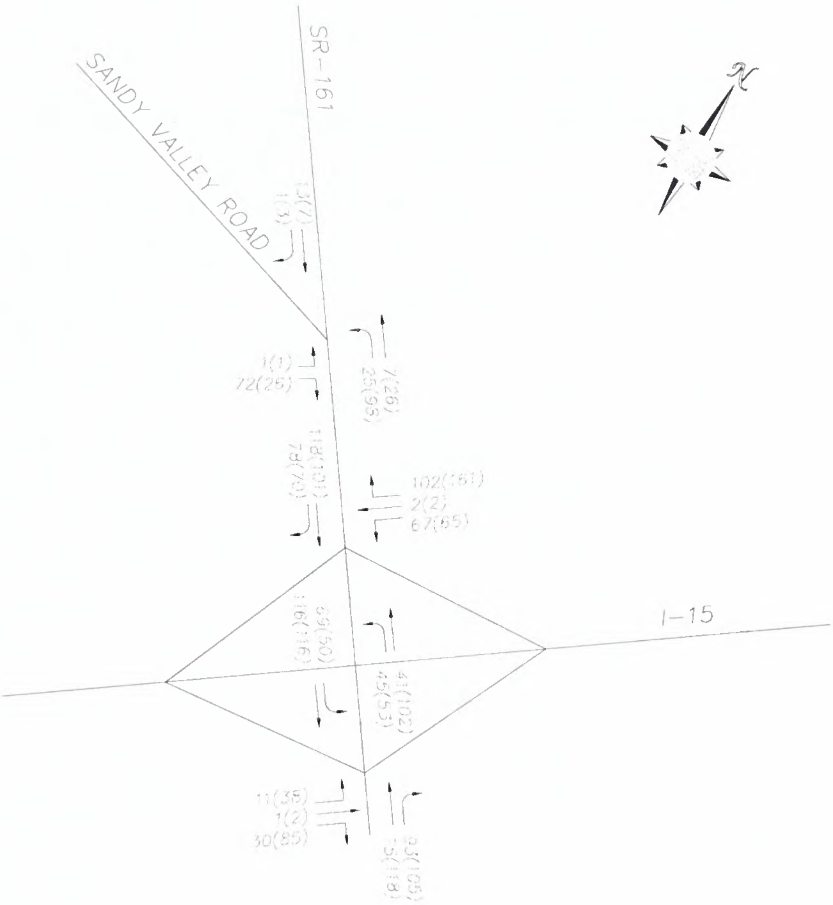


Figure 7: Year 2002 Background Traffic Volumes

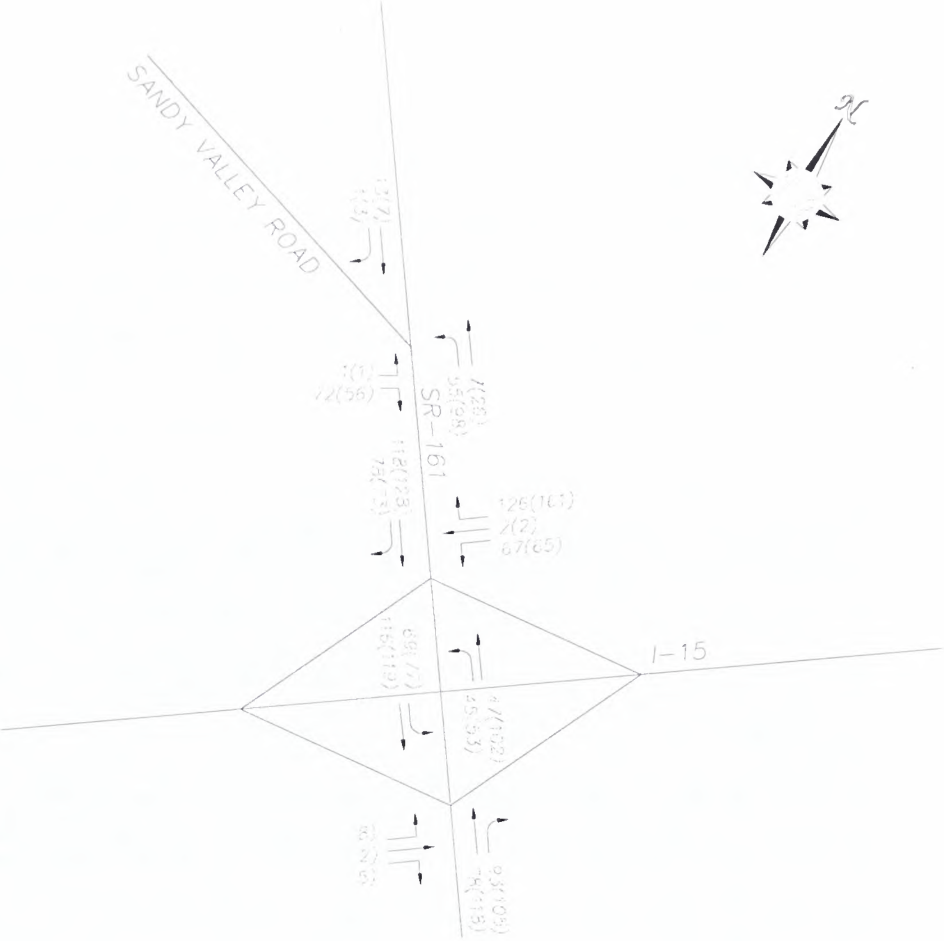


Figure 8: **Year 2002 Background with Site Traffic**

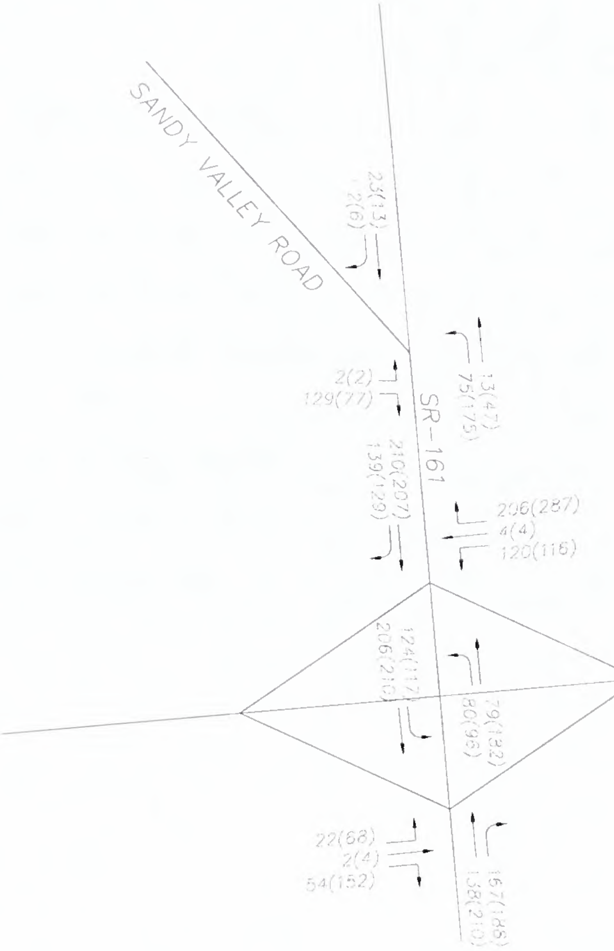


Figure 9: Year 2022 Peak Hour Traffic Volumes

Future Intersection Levels of Service

The anticipated p.m. peak hour traffic flows were analyzed to determine the future levels of service at the intersections of SR-161/Sandy Valley Road, I-15 Westbound/SR–161, and I-15 Eastbound/SR-161. The results indicate that all of the study intersections will continue to operate at acceptable levels of service under year 2002 and year 2022 traffic conditions with the additional site traffic. No future mitigation is required to maintain acceptable operating levels of service. Level of service calculations can be found in Appendix D and are summarized in **Table 2**.

Table 2 – Levels of Service

LEVEL OF SERVICE								
INTERSECTION/MOVEMENT	**EXSITING BACKGROUND**		**YEAR 2002 BACKGROUND**		**YEAR 2002 BACKGROUND WITH SITE TRAFFIC**		**YEAR 2022 BACKGROUND WITH SITE TRAFFIC**	
	A.M.	**P.M.**	**A.M.**	**P.M.**	**A.M.**	**P.M.**	**A.M.**	**P.M.**
SR-161/Sandy Valley Road								
NB: Left	A	A	A	A	A	A	A	A
EB: Left/Right	A	A	A	A	A	A	A	A
I-15 Westbound/SR-161								
WB: Left/Through/Right	A	A	A	B	A	B	B	B
NB: Left	A	A	A	A	A	A	A	A
I-15 Eastbound/SR-161								
EB: Left/Through/Right	A	A	A	A	A	B	B	B
SB: Left/Through	A	A	A	A	A	A	A	A

6

ADDITIONAL CONSIDERATIONS

Construction Impacts

The purpose of this traffic study is to determine and analyze the traffic impacts imposed on the surrounding roadway network by the proposed construction and operation of the wind powered electric generation facility and ancillary facilities in the vicinity of Table Mountain. The impacts associated with the construction of the generating station are expected to be minimal. The construction phase would last approximately eight months (240 days), would required approximately 70 construction workers, and start as soon as the requisite project approvals, permits, and right-of-ways are obtained.

During the construction phase of the wind turbines, the work force and additional truck traffic could increase daily traffic volumes by as many as 170 vehicles. It is estimated that off-site truck traffic would increase traffic volumes by 30 trips per day. For analysis purposes it was assumed that 2 trucks would enter the area and 2 trucks would exit the area during the a.m. and p.m. peak hours. It is estimated that the 70 construction workers would add 140 trips per day. For analysis purposes it was assumed that 70 construction workers would enter the area during the a.m. peak hour and exit the area during the p.m. peak hour. The construction related traffic was distributed per **Figure 5**. The estimated additional off-site construction traffic volumes at the I-15/SR-161 and the SR-161/Sandy Valley intersections can be seen in **Figure 10**. **Figure 11** shows the existing traffic volumes with the additional construction traffic volumes. All three intersections will operate at acceptable levels of service during the construction period. No future mitigation is required to maintain acceptable operating levels of service. Level of service calculations can be found in Appendix E and are summarized in **Table 4**.

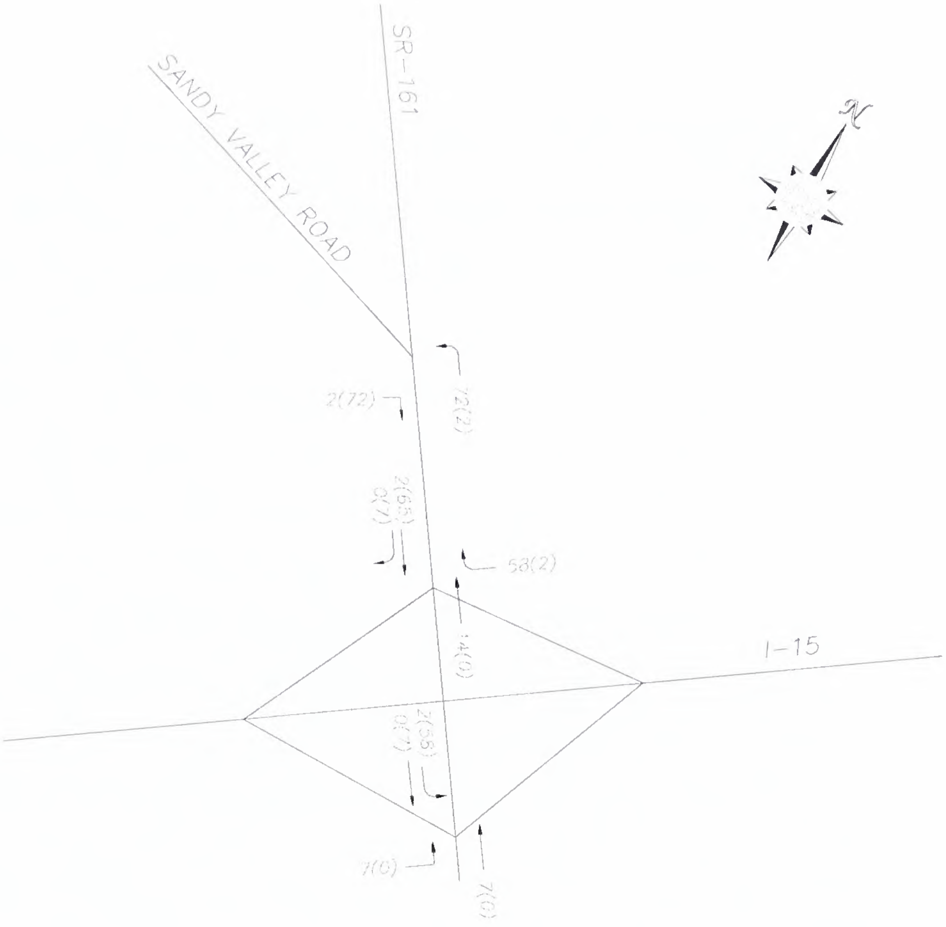


Figure 10: Peak Hour Construction Traffic Volumes

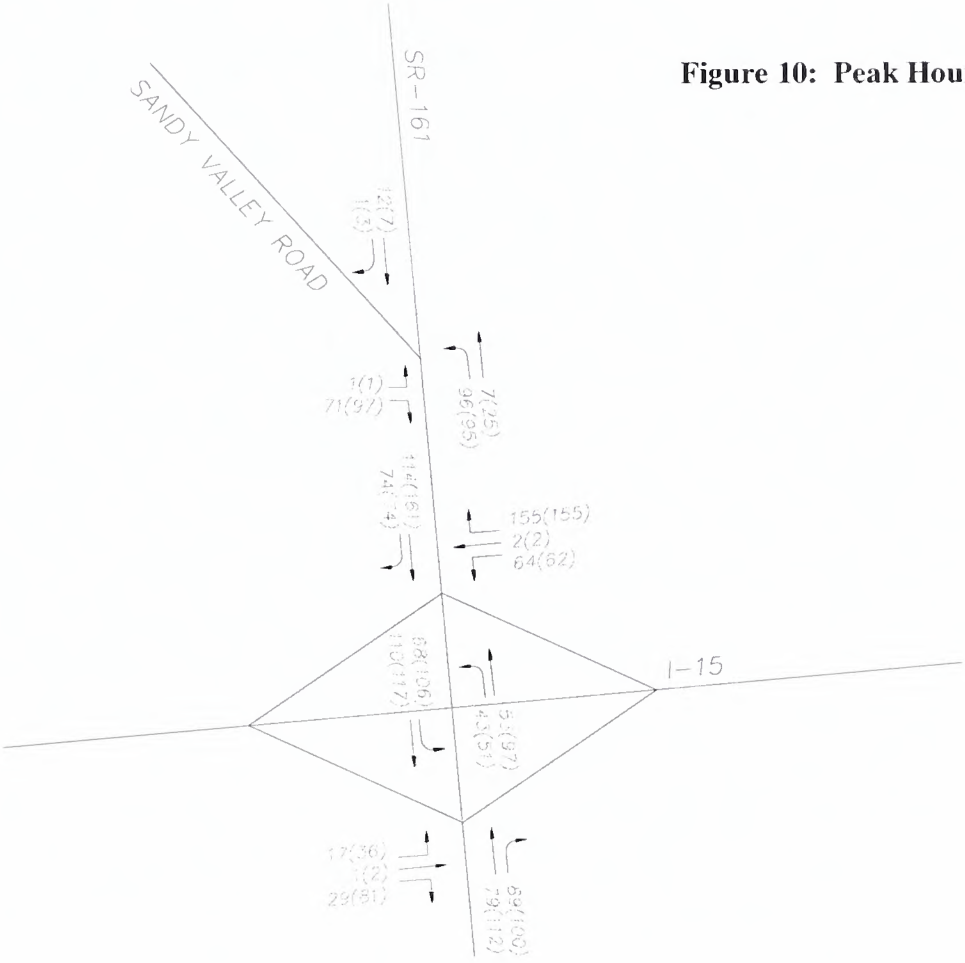


Figure 11: Existing and Construction Peak Hour Traffic Volumes

Table 4 – Construction Levels of Service

	LEVEL OF SERVICE			
	EXISTING		EXISTING PLUS CONSTRUCTION	
INTERSECTION/MOVEMENT	A.M.	P.M.	A.M.	P.M.
SR-161/Sandy Valley Road				
NB: Left	A	A	A	A
EB: Left/Through/Right	A	A	A	A
I-15 Westbound/SR-161				
WB: Left/Through/Right	A	A	A	B
NB: Left	A	A	A	A
I-15 Eastbound/SR-161				
EB: Left/Through/Right	A	A	A	B
SB: Left/Through	A	A	A	A

Attachment A

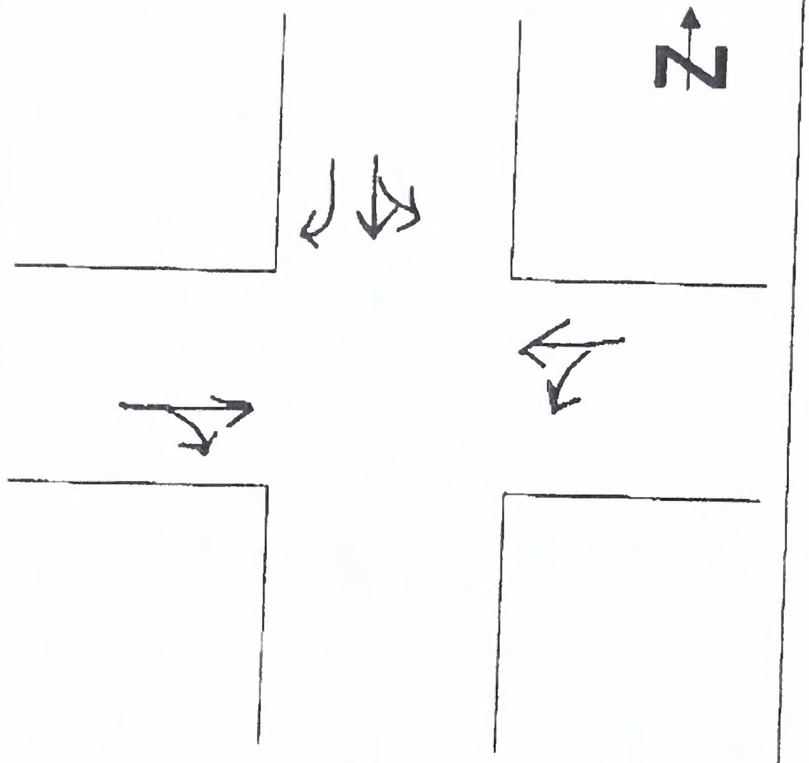
Field Conditions

SILVER STATE TRAFFIC DATA COLLECTION
(702) 898-1968

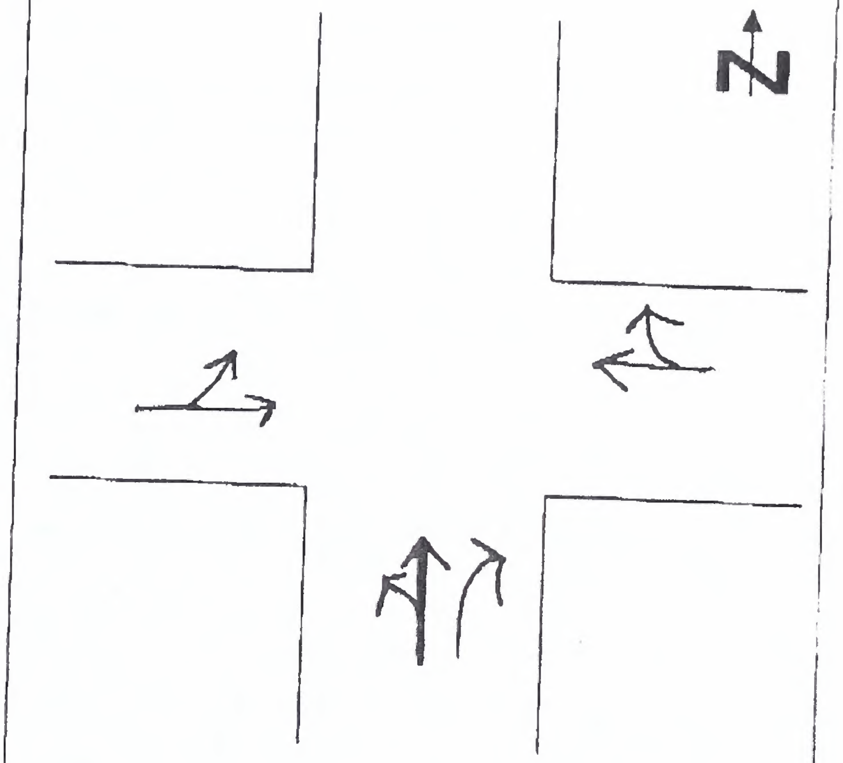
04/27/01

INTERSECTION GEOMETRICS

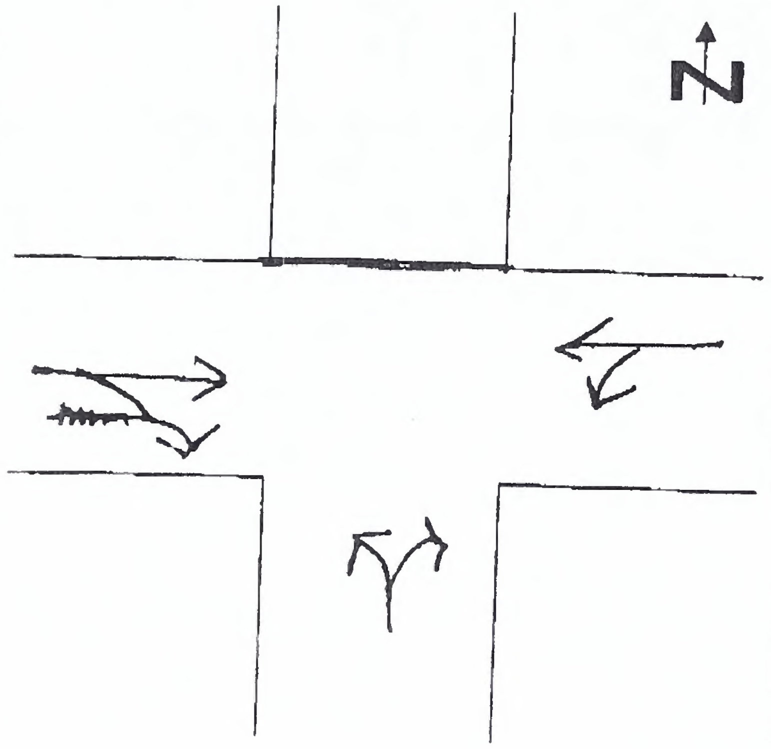
Location: SB Ramps I-15 / Goodsprings



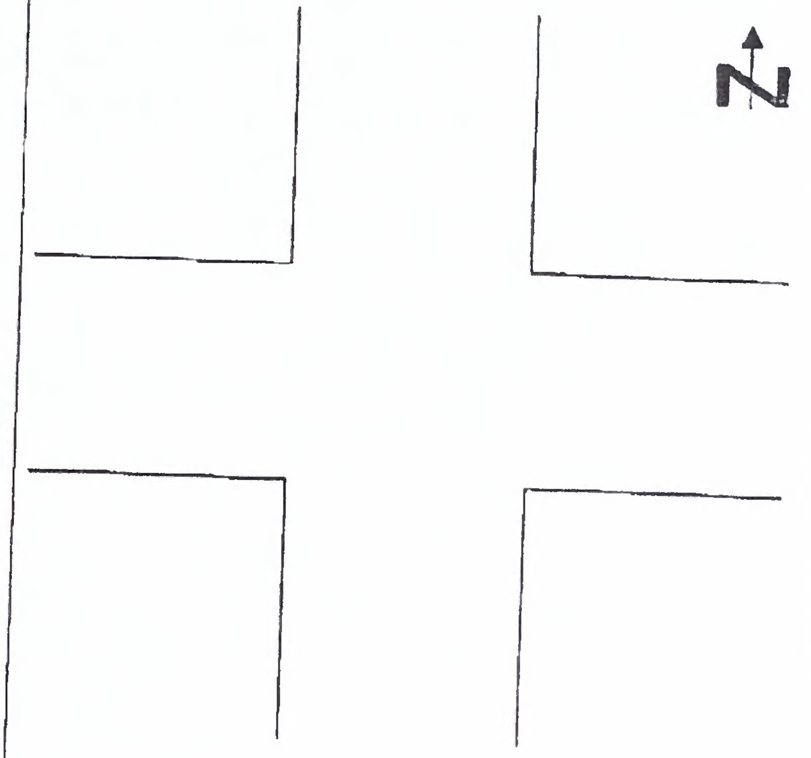
Location: NB Ramps I-15 / Goodsprings



Location: Goodsprings / Sandy Valley



Location:



Weather :
Counter :
Counted by:

Silver State Traffic Data Collection
1819 Quarley Place
Henderson, NV 89014

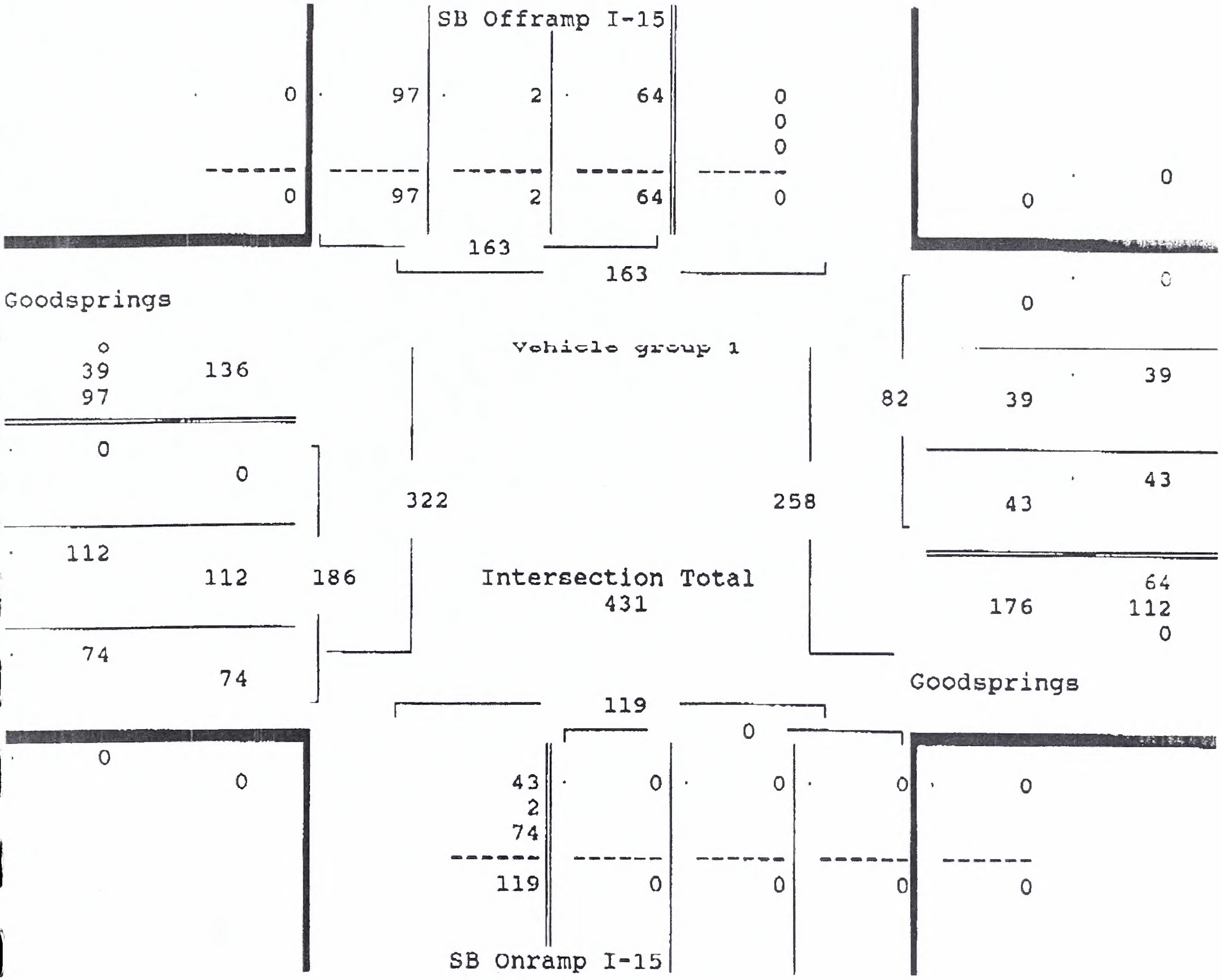
Site Code : 00003333
Start Date: 04/26/01
File I.D. : GS-SBR
Page : 1

Vehicle group 1

	SB Offramp I-15 Southbound				Goodsprings Westbound				SB Onramp I-15 Northbound				Goodsprings Eastbound				
	Other	Right	Thru	Left	Other	Right	Thru	Left	Other	Right	Thru	Left	Other	Right	Thru	Left	Total
Date 04/26/01																	
07:00	0	20	0	9	0	0	8	7	0	0	0	0	0	16	48	0	108
07:15	0	16	0	7	0	0	8	15	0	0	0	0	0	7	26	0	79
07:30	0	24	0	17	0	0	10	7	0	0	0	0	0	17	23	0	98
07:45	0	33	0	15	0	0	9	15	0	0	0	0	0	14	31	0	117
Hr Total	0	93	0	48	0	0	35	44	0	0	0	0	0	54	128	0	402
08:00	0	16	1	22	0	0	8	12	0	0	0	0	0	21	26	0	106
08:15	0	24	1	10	0	0	12	9	0	0	0	0	0	22	32	0	110
08:30	0	24	1	12	0	0	9	7	0	0	0	0	0	21	22	0	96
08:45	0	25	0	14	0	0	10	8	0	0	0	0	0	12	20	0	89
Hr Total	0	89	3	58	0	0	39	36	0	0	0	0	0	76	100	0	401
* BREAK *																	
16:00	0	41	2	18	0	0	20	13	0	0	0	0	0	6	28	0	128
16:15	0	38	3	14	0	0	22	19	0	0	0	0	0	13	20	0	129
16:30	0	39	1	17	0	0	26	12	0	0	0	0	0	13	23	0	131
16:45	0	41	1	18	0	0	22	13	0	0	0	0	0	18	18	0	131
Hr Total	0	159	7	67	0	0	90	57	0	0	0	0	0	50	89	0	519
17:00	0	33	0	11	0	0	25	14	0	0	0	0	0	19	33	0	135
17:15	0	40	0	16	0	0	24	12	0	0	0	0	0	17	22	0	131
17:30	0	21	0	7	0	0	27	13	0	0	0	0	0	9	20	0	97
17:45	0	13	0	1	0	0	21	9	0	0	0	0	0	9	16	0	69
Hr Total	0	107	0	35	0	0	97	48	0	0	0	0	0	54	91	0	432
TOTAL	0	448	10	208	0	0	261	185	0	0	0	0	0	234	408	0	1754

Vehicle group 1

	SB Offramp I-15 Southbound				Goodsprings Westbound				SB Onramp I-15 Northbound				Goodsprings Eastbound				
	Other	Right	Thru	Left	Other	Right	Thru	Left	Other	Right	Thru	Left	Other	Right	Thru	Left	Total
Date 04/26/01																	
Peak Hour Analysis By Entire Intersection for the Period: 07:00 to 12:30 on 04/26/01																	
Peak start	07:30				07:30				07:30				07:30				
Volume	0	97	2	64	0	0	39	43	0	0	0	0	0	74	112	0	
Percent	0%	60%	1%	39%	0%	0%	48%	52%	0%	0%	0%	0%	0%	40%	60%	0%	
Pk total	163				82				0				186				
Highest	07:45				07:45				07:00				08:15				
Volume	0	33	0	15	0	0	9	15	0	0	0	0	0	22	32	0	
Hi total	48				24				0				54				
PHF	.85				.85				.0				.86				



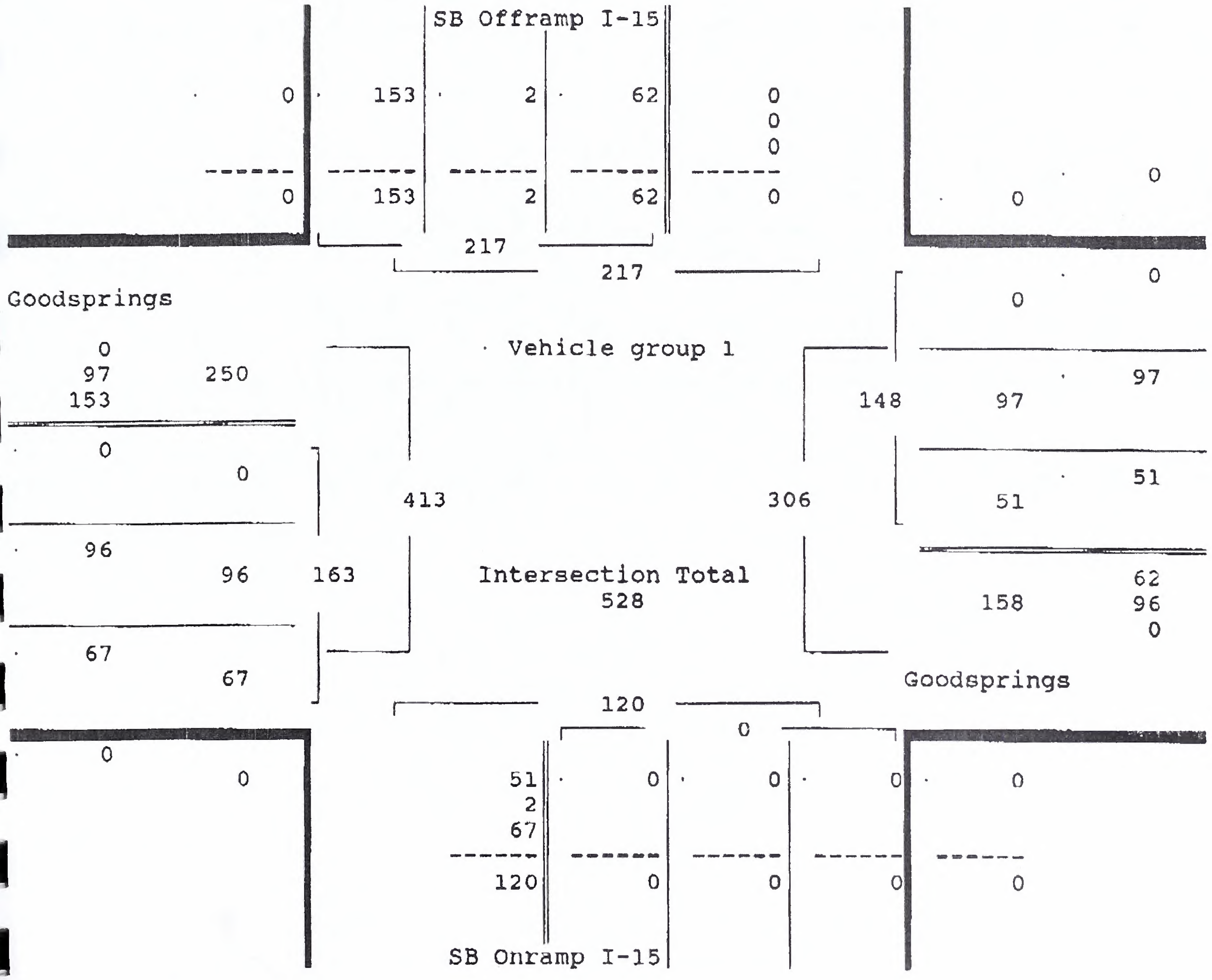
Vehicle group 1

	SB Offramp I-15 Southbound				Goodsprings Westbound				SB Onramp I-15 Northbound				Goodsprings Eastbound				
	Other	Right	Thru	Left	Other	Right	Thru	Left	Other	Right	Thru	Left	Other	Right	Thru	Left	Total

Date 04/26/01

Peak Hour Analysis By Entire Intersection for the Period: 12:30 to 18:00 on 04/26/01

	SB Offramp I-15 Southbound				Goodsprings Westbound				SB Onramp I-15 Northbound				Goodsprings Eastbound				
	Other	Right	Thru	Left	Other	Right	Thru	Left	Other	Right	Thru	Left	Other	Right	Thru	Left	Total
Peak start	16:30				16:30				16:30				16:30				
Volume	0	153	2	62	0	0	97	51	0	0	0	0	0	67	96	0	
Percent	0%	71%	1%	29%	0%	0%	66%	34%	0%	0%	0%	0%	0%	41%	59%	0%	
Pk total	217				148				0				163				
Highest	16:45				17:00				07:00				17:00				
Volume	0	41	1	18	0	0	25	14	0	0	0	0	0	19	33	0	
Hi total	60				39				0				52				
PHF	.90				.95				.0				.78				



Weather :
Counter :
Counted by:

Silver State Traffic Data Collection
1819 Quarley Place
Henderson, NV 89014

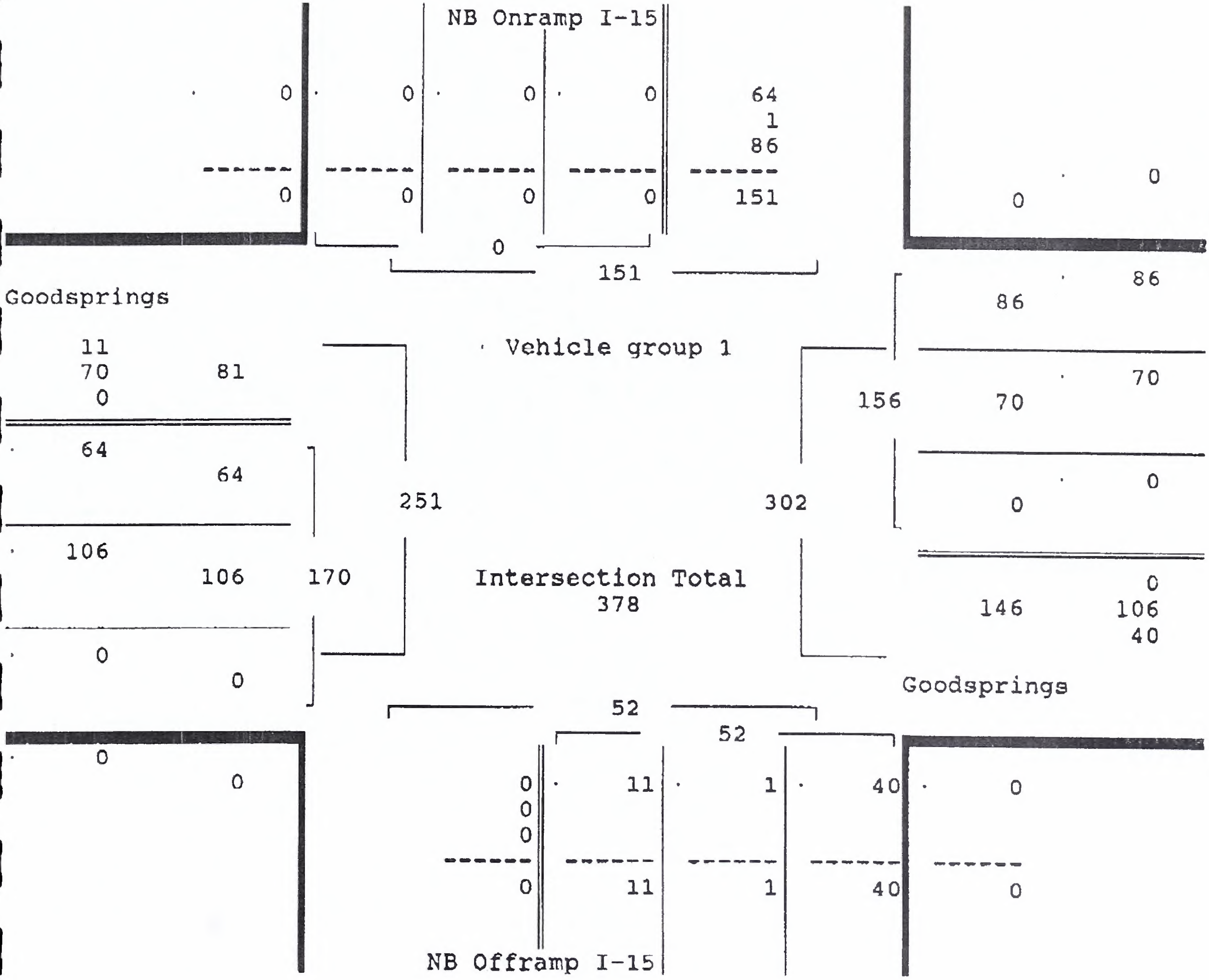
Site Code : 00001111
Start Date: 04/26/01
File I.D. : GS-NBR
Page : 1

Vehicle group 1

	NB Onramp I-15 Southbound				Goodsprings Westbound				NB Offramp I-15 Northbound				Goodsprings Eastbound				
Date 04/26/01	Other	Right	Thru	Left	Other	Right	Thru	Left	Other	Right	Thru	Left	Other	Right	Thru	Left	Total
07:00	0	0	0	0	0	16	12	0	0	9	0	3	0	0	24	33	97
07:15	0	0	0	0	0	12	20	0	0	7	1	3	0	0	14	19	76
07:30	0	0	0	0	0	22	15	0	0	2	0	2	0	0	22	18	81
07:45	0	0	0	0	0	22	23	0	0	5	0	1	0	0	29	17	97
Hr Total	0	0	0	0	0	72	70	0	0	23	1	9	0	0	89	87	351
08:00	0	0	0	0	0	16	19	0	0	9	1	1	0	0	31	17	94
08:15	0	0	0	0	0	29	15	0	0	13	0	6	0	0	28	14	105
08:30	0	0	0	0	0	19	13	0	0	13	0	3	0	0	18	16	82
08:45	0	0	0	0	0	15	15	0	0	13	1	3	0	0	24	10	81
Hr Total	0	0	0	0	0	79	62	0	0	48	2	13	0	0	101	57	362
* BREAK *																	
16:00	0	0	0	0	0	25	27	0	0	28	2	6	0	0	33	13	134
16:15	0	0	0	0	0	22	29	0	0	24	0	12	0	0	27	7	121
16:30	0	0	0	0	0	30	27	0	0	19	0	11	0	0	26	14	127
16:45	0	0	0	0	0	17	28	0	0	18	1	7	0	0	30	6	107
Hr Total	0	0	0	0	0	94	111	0	0	89	3	36	0	0	116	40	489
17:00	0	0	0	0	0	25	32	0	0	27	1	7	0	0	26	18	136
17:15	0	0	0	0	0	28	25	0	0	17	0	11	0	0	28	10	119
17:30	0	0	0	0	0	14	36	0	0	25	0	4	0	0	20	7	106
17:45	0	0	0	0	0	18	28	0	0	18	0	2	0	0	18	9	93
Hr Total	0	0	0	0	0	85	121	0	0	87	1	24	0	0	92	44	454
TOTAL	0	0	0	0	0	330	364	0	0	247	7	82	0	0	398	228	1656

Vehicle group 1

	NB Onramp I-15 Southbound				Goodsprings Westbound				NB Offramp I-15 Northbound				Goodsprings Eastbound				
	Other	Right	Thru	Left	Other	Right	Thru	Left	Other	Right	Thru	Left	Other	Right	Thru	Left	Total
Date 04/26/01																	
Peak Hour Analysis By Entire Intersection for the Period: 07:00 to 12:30 on 04/26/01																	
Peak start	07:45				07:45				07:45				07:45				
Volume	0	0	0	0	0	86	70	0	0	40	1	11	0	0	106	64	
Percent	0%	0%	0%	0%	0%	55%	45%	0%	0%	77%	2%	21%	0%	0%	62%	38%	
Pk total	0				156				52				170				
Highest	07:00				07:45				08:15				08:00				
Volume	0	0	0	0	0	22	23	0	0	13	0	6	0	0	31	17	
Hi total	0				45				19				48				
PHF	.0				.87				.68				.89				



Weather :
Counter :
Counted by:

Silver State Traffic Data Collection
1819 Quarley Place
Henderson, NV 89014

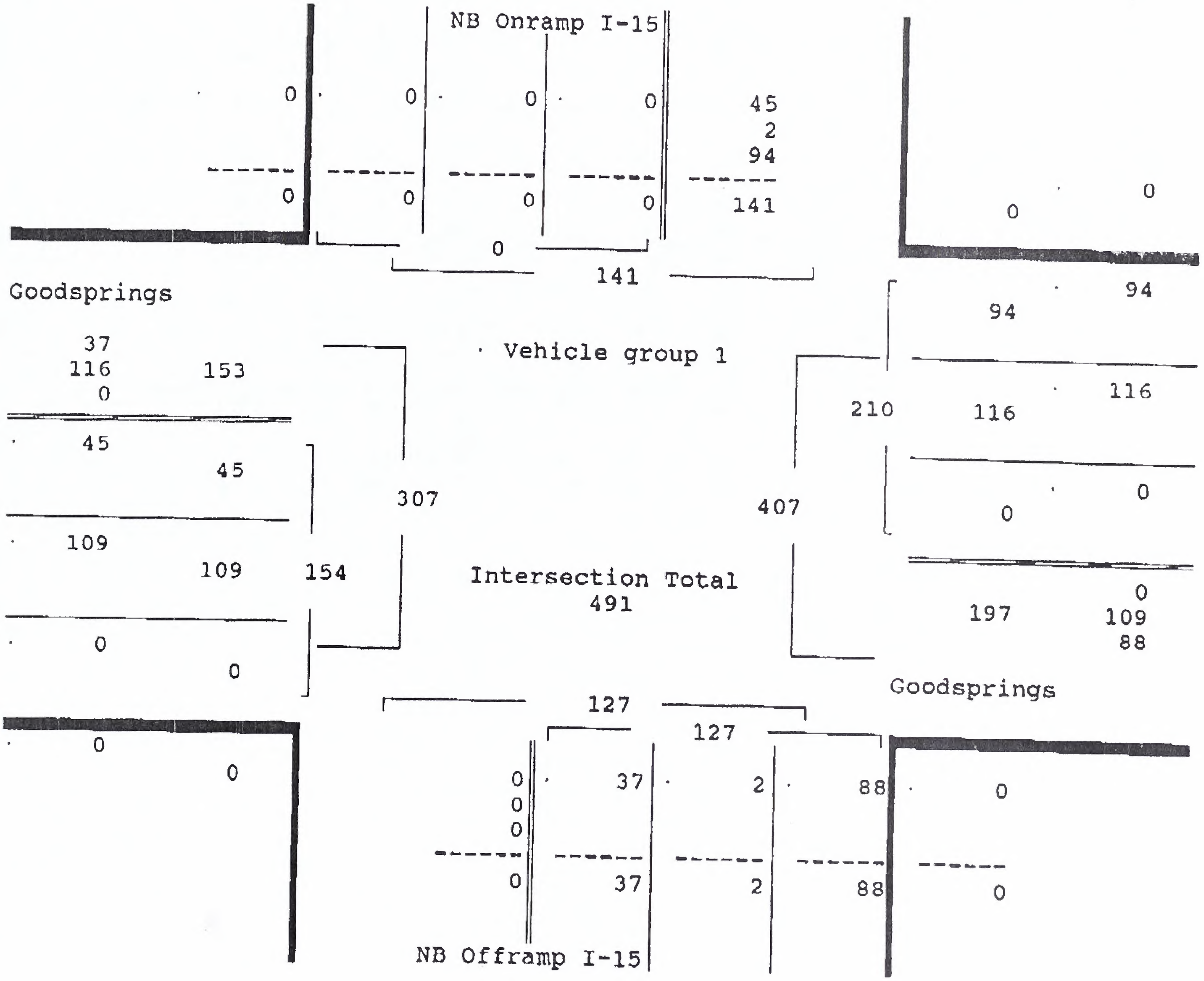
Site Code : 00001111
Start Date: 04/26/01
File I.D. : GS-NBR
Page : 3

Vehicle group 1

Date 04/26/01

Peak Hour Analysis By Entire Intersection for the Period: 12:30 to 18:00 on 04/26/01

	NB Onramp I-15 Southbound				Goodsprings Westbound				NB Offramp I-15 Northbound				Goodsprings Eastbound				
	Other	Right	Thru	Left	Other	Right	Thru	Left	Other	Right	Thru	Left	Other	Right	Thru	Left	Total
Peak start	16:15				16:15				16:15				16:15				
Volume	0	0	0	0	0	94	116	0	0	88	2	37	0	0	109	45	
Percent	0%	0%	0%	0%	0%	45%	55%	0%	0%	69%	2%	29%	0%	0%	71%	29%	
Pk total	0				210				127				154				
Highest	07:00				16:30				16:15				17:00				
Volume	0	0	0	0	0	30	27	0	0	24	0	12	0	0	26	18	
Hi total	0				57				36				44				
PHF	.0				.92				.88				.88				



Weather :
Counter :
Counted by:

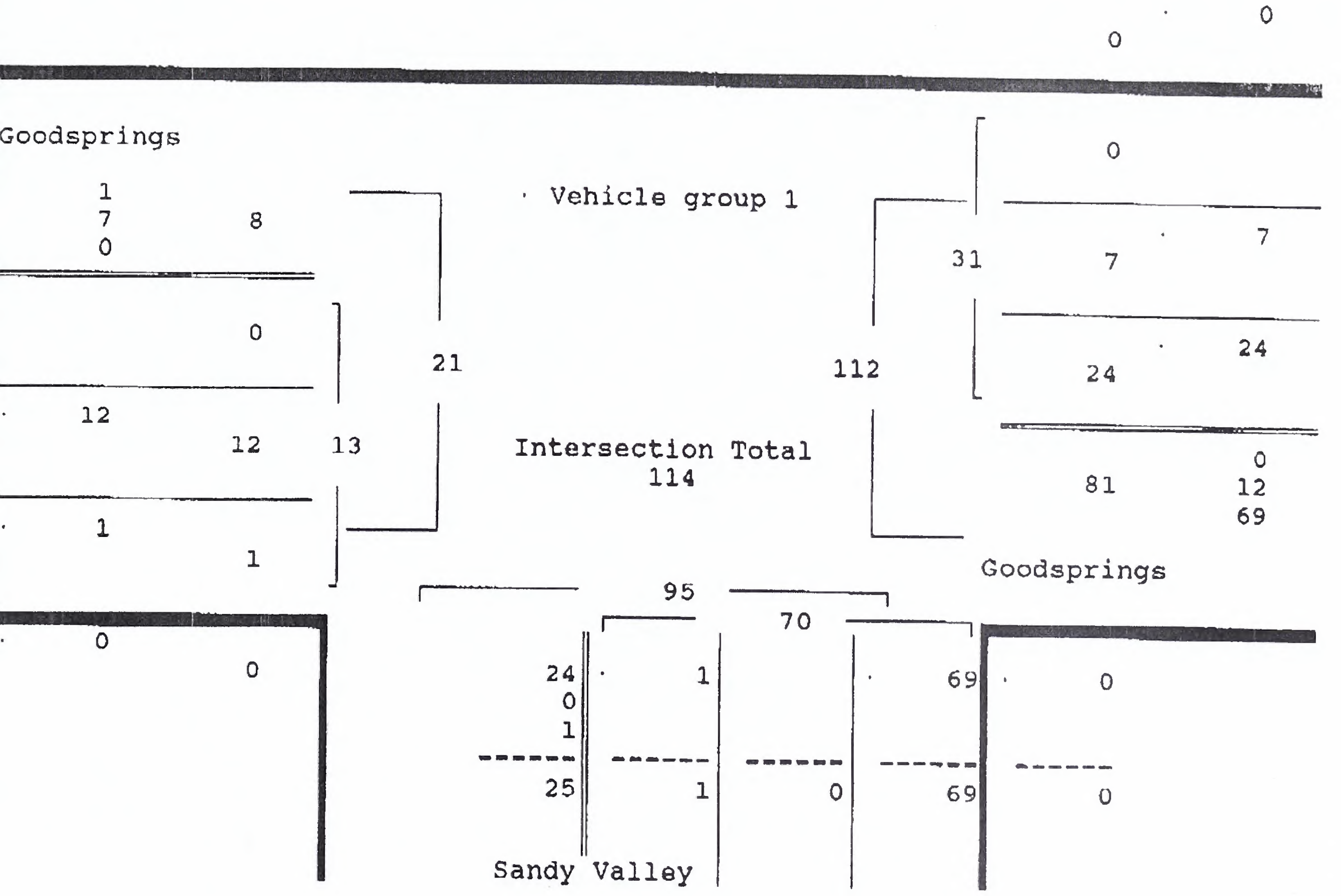
Silver State Traffic Data Collection
1819 Quarley Place
Henderson, NV 89014

Site Code : 77777777
Start Date: 04/26/01
File I.D. : SV-GS
Page : 1

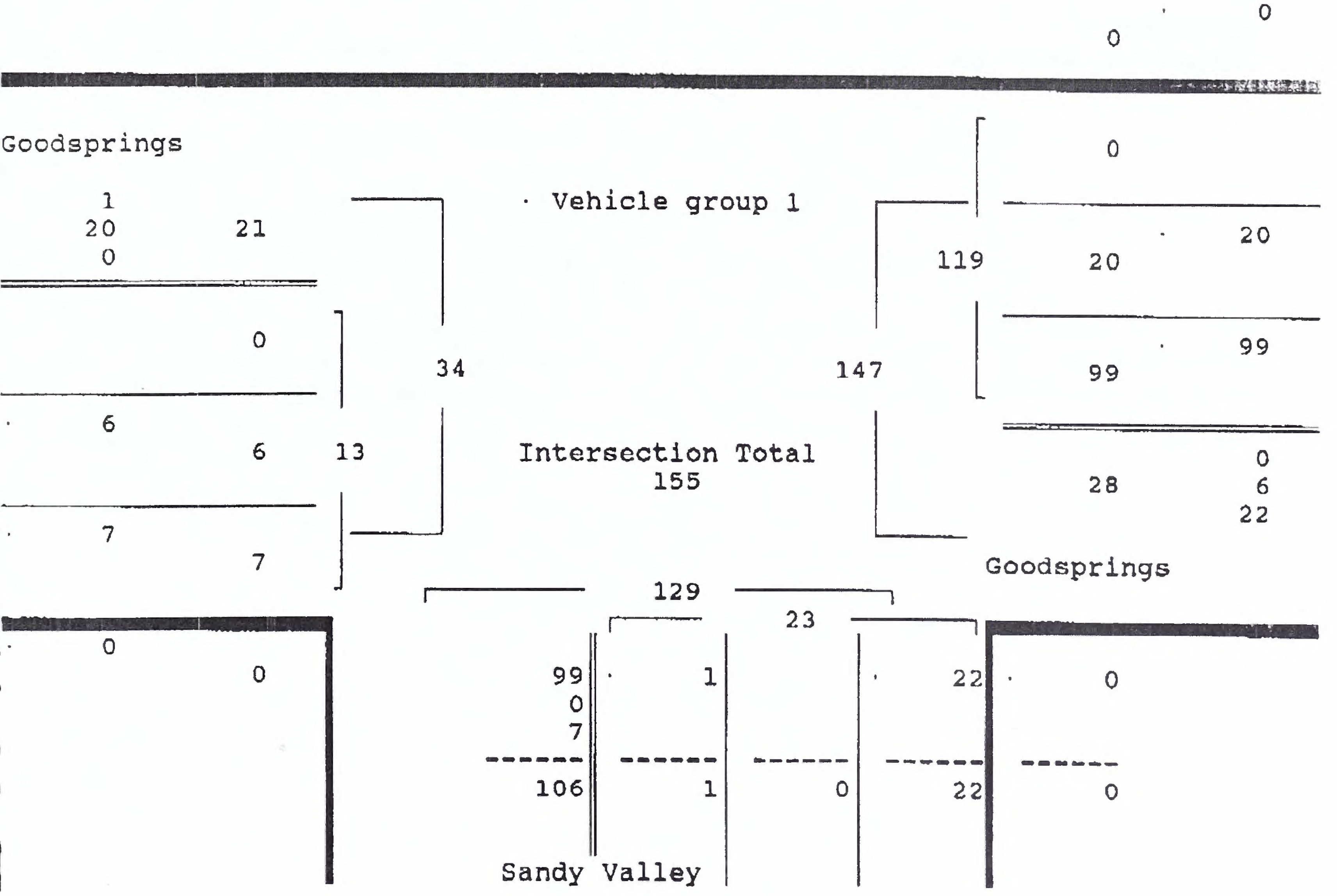
Vehicle group 1

	Goodsprings Westbound			Sandy Valley Northbound			Goodsprings Eastbound			
	Other	Thru	Left	Other	Right	Left	Other	Right	Thru	Total
Date 04/26/01										
07:00	0	1	5	0	29	0	0	0	1	36
07:15	0	2	6	0	14	0	0	0	1	23
07:30	0	2	6	0	9	0	0	1	0	18
07:45	0	1	4	0	18	0	0	0	3	26
Hr Total	0	6	21	0	70	0	0	1	5	103
08:00	0	1	4	0	23	0	0	0	3	31
08:15	0	3	10	0	19	1	0	0	6	39
08:30	0	1	7	0	3	0	0	1	3	15
08:45	0	1	7	0	10	1	0	0	3	22
Hr Total	0	6	28	0	55	2	0	1	15	107
* BREAK *										
16:00	0	6	19	0	6	0	0	1	4	36
16:15	0	5	22	0	3	0	0	0	1	31
16:30	0	6	30	0	5	0	0	0	3	44
16:45	0	3	18	0	5	0	0	0	0	26
Hr Total	0	20	89	0	19	0	0	1	8	137
17:00	0	5	15	0	9	0	0	1	1	31
17:15	0	11	30	0	6	1	0	2	3	53
17:30	0	2	36	0	3	0	0	2	1	44
17:45	0	2	18	0	4	0	0	2	1	27
Hr Total	0	20	99	0	22	1	0	7	6	155
TOTAL	0	52	237	0	166	3	0	10	34	502

```
Weather    :                  Silver State Traffic Data Collection
Counter    :                         1819 Quarley Place                      Site Code : 77777777
Counted by:                          Henderson, NV  89014                    Start Date: 04/26/01
                                                                             File I.D. : SV-GS
                                                                             Page      : 2
                                        Vehicle group 1
-------------------------------------------------------------------------------------------------
         Goodsprings           |Sandy Valley         |Goodsprings          |
         Westbound             |Northbound           |Eastbound            |
                               |                     |                     |
         Other   Thru   Left   | Other  Right   Left | Other  Right   Thru |   Total
Date 04/26/01 -----------------------------------------------------------------------------------
Peak Hour Analysis By Entire Intersection for the Period: 07:00 to 12:30 on 04/26/01
Peak start 07:30               |  07:30              |  07:30              |
Volume        0      7     24  |    0     69      1  |    0      1     12  |
Percent       0%    23%    77% |    0%    99%     1% |    0%     8%    92%  |
Pk total     31                |   70                |   13                |
Highest     08:15              |  08:00              |  08:15              |
Volume        0      3     10  |    0     23      0  |    0      0      6  |
Hi total     13                |   23                |    6                |
PHF         .60                |  .76                |  .54                |
```



```
Weather    :                    Silver State Traffic Data Collection                    Site Code : 77777777
Counter    :                           1819 Ouarley Place                              Start Date: 04/26/01
Counted by:                           Henderson, NV  89014                             File I.D. : SV-GS
                                                                                        Page      : 3
                                        Vehicle group 1
----------------------------------------------------------------------------------------------------------
        Goodsprings              |Sandy Valley            |Goodsprings           |
        Westbound                |Northbound              |Eastbound             |
                                 |                        |                      |
         Other    Thru    Left   | Other  Right    Left   | Other  Right   Thru  |   Total
Date 04/26/01 ---------------------------------------------------------------------------------------------
Peak Hour Analysis By Entire Intersection for the Period: 12:30 to 18:00 on 04/26/01
Peak start 17:00                 |  17:00                 |  17:00               |
Volume       0      20      99   |   0      22       1    |   0      7      6    |
Percent     0%     17%     83%   |  0%     96%      4%    |  0%    54%    46%    |
Pk total   119                   |  23                    |  13                  |
Highest   17:15                  |  17:00                 |  17:15               |
Volume       0      11      30   |   0       9       0    |   0      2      3    |
Hi total    41                   |   9                    |   5                  |
PHF        .73                   |  .64                   |  .65                 |
```



Attachment B

Level of Service—Existing

LEVEL OF SERVICE DEFINITIONS*

(Unsignalized Intersections)

Level of Service	Average Total Delay (SEC/VEH)	Qualitative Description
A	≤ 10	Little or no delays
B	>10 and ≥ 15	Short traffic delays
C	>15 and ≥ 25	Average traffic delays
D	>25 and ≥ 35	Long traffic delays
E	>35 and ≥ 50	Very long traffic delays
F	>50	**

* In urban areas, levels of service A to D for intersections are generally considered acceptable, while levels of service E and F are generally unacceptable.

** When demand volume exceeds the capacity of the lane, extreme delays will be encountered with queuing which may cause severe congestion affecting other traffic movements in the intersection. This condition usually warrants improvements to the intersection.

```
                HCS: Unsignalized Intersections Release 3.1b

___________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS___________________________

Analyst: CBH
Intersection: GOOD SPRINGS/SANDY VALLEY
Count Date: EXISTING
Time Period: AM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:         1       2       5       6      10      12
-----------------------------------------------------------------------------------------------
Volume:           24       7      12       1       1      69
HFR:              24       7      12       1       1      69
PHF:            1.00    1.00    1.00    1.00    1.00    1.00
PHV:            0.00    0.00    0.00    0.00    0.00    0.00
-----------------------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
-----------------------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:     None
# of vehicles:  0

Flared approach Movements:

# of vehicles: Eastbound      0
# of vehicles: Westbound      0


Lane usage for movements 1,2&3 approach:
              Lane 1                      Lane 2                      Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       Y       Y       N       N       N       N       N       N       N

Channelized:       N
Grade:          0.00


Lane usage for movements 4,5&6 approach:
              Lane 1                      Lane 2                      Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       N       Y       Y       N       N       N       N       N       N

Channelized:       N
Grade:          0.00


Lane usage for movements 7,8&9 approach:
              Lane 1                      Lane 2                      Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       N       N       N       N       N       N       N       N       N

Channelized:       N
Grade:          0.00


Lane usage for movements 10,11&12 approach:
              Lane 1                      Lane 2                      Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       Y       N       Y       N       N       N       N       N       N

Channelized:       N
Grade:          0.00


Data for Computing Effect of Delay to Major Street Vehicles:
-----------------------------------------------------------------------------------------------
```

```
                                                Northbound               Southbound
Shared ln volume, major th vehicles:                7                       0
Shared ln volume, major rt vehicles:                0                       0
Sat flow rate, major th vehicles:                1700                    1700
Sat flow rate, major rt vehicles:                1700                    1700
Number of major street through lanes:               1                       1


Length of study period, hrs:      0.25

-----------------------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement           1      10     12
-----------------------------------------------------------------------------------------------
t c,base         4.1    7.1    6.2
t  c,hv          1.0    1.0    1.0
P hv            0.00   0.00   0.00
t  c,g                  0.2    0.1
G               0.00   0.00   0.00
t  3,lt          0.0    0.7    0.0
t  c,T:
 1 stage        0.00   0.00   0.00

t c
 1 stage         4.1    6.4    6.2

Follow Up Time Calculations:
Movement           1      10     12
-----------------------------------------------------------------------------------------------
t  f,base        2.2    3.5    3.3
t  f,HV          0.9    0.9    0.9
P hv            0.00   0.00   0.00
t f              2.2    3.5    3.3
-----------------------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                          9  .            12
-----------------------------------------------------------------------------------------------
Conflicting Flows                                                  13
Potential Capacity                                               1074
Pedestrian Impedance Factor                                      1.00
Movement Capacity                                                1074
Probability of Queue free St.                                    0.94
-----------------------------------------------------------------------------------------------

Step 2: LT from Major St.                          4                1
-----------------------------------------------------------------------------------------------
Conflicting Flows                                                  13
Potential Capacity                                               1619
Pedestrian Impedance Factor                                      1.00
Movement Capacity                                                1619
Probability of Queue free St.                                    0.99
Maj. L Shared ln. Prob. Queue Free St.                           0.99
-----------------------------------------------------------------------------------------------

Step 4: LT from Minor St.                          7               10
-----------------------------------------------------------------------------------------------
Conflicting Flows                                                  68
Potential Capacity                                                943
Pedestrian Impedance Factor                                      1.00
Maj. L, Min T Impedance factor                                   0.99
Maj. L, Min T Adj. Imp Factor.                                   0.99
Cap. Adj. factor due to Impeding mvmnt                           0.99
Movement Capacity                                                 932
-----------------------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                                  7      8      9    10     11     12
-----------------------------------------------------------------------------------------------
                                       |                   ||------       ------|
                                       |                   ||                   |
                                       |                   ||                   |
v(vph)                                                        1            69
Movement Capacity                                           932          1074
Shared Lane Capacity                                       1071
-----------------------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS
```

```
Movement                   1       4       7       8       9     10      11      12
---------------------------------------------------------------------------------------------
                                         |                     ||------         ------|
                                         |                     ||                     |
                                         |                     ||                     |
v(vph)                    24                                     70
C m(vph)                1619                                   1071
v/c                     0.01                                   0.07
95% queue length
Control Delay            7.3                                    8.6
LOS                        A                                      A
Approach Delay                                                          8.6
Approach LOS                                                              A
---------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                     2       5
---------------------------------------------------------------------------------------------
P oj                                      0.99    1.00
V i1                                         7       0
V i2                                         0       0
S i1                                      1700    1700
S i2                                      1700    1700
P* 0j                                     0.99    1.00
D maj left                                 7.3     0.0
N number major st lanes                      1       1
Delay, rank 1 mvmts                        0.1     0.0
---------------------------------------------------------------------------------------------
```

```
                HCS: Unsignalized Intersections Release 3.1b

___________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS__________________________

Analyst: CBH
Intersection: GOOD SPRINGS/SANDY VALLEY
Count Date: EXISTING
Time Period: PM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:       1      2      5      6     10     12
-----------------------------------------------------------------------------------------------
Volume:         93     25      7      3      1     25
HFR:            93     25      7      3      1     25
PHF:          1.00   1.00   1.00   1.00   1.00   1.00
PHV:          0.00   0.00   0.00   0.00   0.00   0.00
-----------------------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
-----------------------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:    None
# of vehicles:  0

Flared approach Movements:

# of vehicles: Eastbound      0
# of vehicles: Westbound      0


Lane usage for movements 1,2&3 approach:
               Lane 1                 Lane 2                 Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       Y       Y       N       N       N       N       N       N       N

Channelized:      N
Grade:         0.00


Lane usage for movements 4,5&6 approach:
               Lane 1                 Lane 2                 Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       N       Y       Y       N       N       N       N       N       N

Channelized:      N
Grade:         0.00


Lane usage for movements 7,8&9 approach:
               Lane 1                 Lane 2                 Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       N       N       N       N       N       N       N       N       N

Channelized:      N
Grade:         0.00


Lane usage for movements 10,11&12 approach:
               Lane 1                 Lane 2                 Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       Y       N       Y       N       N       N       N       N       N

Channelized:      N
Grade:         0.00


Data for Computing Effect of Delay to Major Street Vehicles:
-----------------------------------------------------------------------------------------------
```

```
                                              Northbound              Southbound
Shared ln volume, major th vehicles:              25                       0
Shared ln volume, major rt vehicles:               0                       0
Sat flow rate, major th vehicles:               1700                    1700
Sat flow rate, major rt vehicles:               1700                    1700
Number of major street through lanes:              1                       1


Length of study period, hrs:      0.25

-------------------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement             1      10      12
-------------------------------------------------------------------------------------------
t c,base           4.1     7.1     6.2
t  c,hv            1.0     1.0     1.0
P hv              0.00    0.00    0.00
t  c,g                     0.2     0.1
G                 0.00    0.00    0.00
t  3,lt            0.0     0.7     0.0
t  c,T:
 1 stage          0.00    0.00    0.00

t c
 1 stage           4.1     6.4     6.2

Follow Up Time Calculations:
Movement             1      10      12
-------------------------------------------------------------------------------------------
t  f,base          2.2     3.5     3.3
t  f,HV            0.9     0.9     0.9
P hv              0.00    0.00    0.00
t f                2.2     3.5     3.3
-------------------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                              9              12
-------------------------------------------------------------------------------------------
Conflicting Flows                                                      9
Potential Capacity                                                  1079
Pedestrian Impedance Factor                                         1.00
Movement Capacity                                                   1079
Probability of Queue free St.                                       0.98
-------------------------------------------------------------------------------------------

Step 2: LT from Major St.                              4               1
-------------------------------------------------------------------------------------------
Conflicting Flows                                                     10
Potential Capacity                                                  1623
Pedestrian Impedance Factor                                         1.00
Movement Capacity                                                   1623
Probability of Queue free St.                                       0.94
Maj. L Shared ln. Prob. Queue Free St.                              0.94
-------------------------------------------------------------------------------------------

Step 4: LT from Minor St.                              7              10
-------------------------------------------------------------------------------------------
Conflicting Flows                                                    220
Potential Capacity                                                   773
Pedestrian Impedance Factor                                         1.00
Maj. L, Min T Impedance factor                                      0.94
Maj. L, Min T Adj. Imp Factor.                                      0.96
Cap. Adj. factor due to Impeding mvmnt                              0.96
Movement Capacity                                                    739
-------------------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                                  7      8      9     10     11     12
-------------------------------------------------------------------------------------------
                                         |                 ||------        ------|
                                         |                 ||                    |
                                         |                 ||                    |
v(vph)                                                         1             25
Movement Capacity                                            739           1079
Shared Lane Capacity                                        1060
-------------------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS
```

```
Movement                   1      4      7      8      9     10     11     12
-----------------------------------------------------------------------------------------------
                                      |                   ||------       ------|
                                      |                   ||                   |
                                      |                   ||                   |
v(vph)                    93                                 26
C m(vph)                1623                               1060
v/c                     0.06                               0.02
95% queue length
Control Delay            7.4                                8.5
LOS                        A                                  A
Approach Delay                                                     8.5
Approach LOS                                                         A
-----------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                    2      5
-----------------------------------------------------------------------------------------------
P oj                                     0.94   1.00
V i1                                       25      0
V i2                                        0      0
S i1                                     1700   1700
S i2                                     1700   1700
P* 0j                                    0.94   1.00
D maj left                                7.4    0.0
N number major st lanes                     1      1
Delay, rank 1 mvmts                       0.4    0.0
-----------------------------------------------------------------------------------------------
```

```
                HCS: Unsignalized Intersections Release 3.1b

___________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS__________________________

Analyst: cbh
Intersection: I-15/JEAN SB OFF
Count Date: EXISTING
Time Period: AM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:       1      2      5      6      7      8      9
----------------------------------------------------------------------------------------------
Volume:         43     39    112     74     64      2     97
HFR:            43     39    112     74     64      2     97
PHF:          1.00   1.00   1.00   1.00   1.00   1.00   1.00
PHV:          0.00   0.00   0.00   0.00   0.00   0.00   0.00
----------------------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
----------------------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:    None
# of vehicles:  0

Flared approach Movements:

# of vehicles: Eastbound      0
# of vehicles: Westbound      0


Lane usage for movements 1,2&3 approach:
              Lane 1                 Lane 2                 Lane 3
       L       T       R      L       T       R      L       T       R
----------------------------------------------------------------------------------------------
       Y       Y       N      N       N       N      N       N       N

Channelized:      N
Grade:         0.00


Lane usage for movements 4,5&6 approach:
              Lane 1                 Lane 2                 Lane 3
       L       T       R      L       T       R      L       T       R
----------------------------------------------------------------------------------------------
       N       Y       Y      N       N       N      N       N       N

Channelized:      N
Grade:         0.00


Lane usage for movements 7,8&9 approach:
              Lane 1                 Lane 2                 Lane 3
       L       T       R      L       T       R      L       T       R
----------------------------------------------------------------------------------------------
       Y       Y       N      N       N       Y      N       N       N

Channelized:      N
Grade:         0.00


Lane usage for movements 10,11&12 approach:
              Lane 1                 Lane 2                 Lane 3
       L       T       R      L       T       R      L       T       R
----------------------------------------------------------------------------------------------
       N       N       N      N       N       N      N       N       N

Channelized:      N
Grade:         0.00


Data for Computing Effect of Delay to Major Street Vehicles:
----------------------------------------------------------------------------------------------
```

```
                                             Northbound                Southbound
Shared ln volume, major th vehicles:           39                       119
Shared ln volume, major rt vehicles:            0                         0
Sat flow rate, major th vehicles:             1700                      1700
Sat flow rate, major rt vehicles:             1700                      1700
Number of major street through lanes:           1                         1


Length of study period, hrs:      0.25

-------------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement            1      7      8      9
-------------------------------------------------------------------------------------
t c,base          4.1    7.1    6.5    6.2
t  c,hv           1.0    1.0    1.0    1.0
P hv             0.00   0.00   0.00   0.00
t  c,g                   0.2    0.2    0.1
G                0.00   0.00   0.00   0.00
t  3,lt           0.0    0.7    0.0    0.0
t  c,T:
 1 stage         0.00   0.00   0.00   0.00

t c
 1 stage          4.1    6.4    6.5    6.2

Follow Up Time Calculations:
Movement            1      7      8      9
-------------------------------------------------------------------------------------
t  f,base         2.2    3.5    4.0    3.3
t  f,HV           0.9    0.9    0.9    0.9
P hv             0.00   0.00   0.00   0.00
t f               2.2    3.5    4.0    3.3
-------------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                        9             12
-------------------------------------------------------------------------------------
Conflicting Flows                               39
Potential Capacity                            1038
Pedestrian Impedance Factor                   1.00
Movement Capacity                             1038
Probability of Queue free St.                 0.91
-------------------------------------------------------------------------------------

Step 2: LT from Major St.                        4              1
-------------------------------------------------------------------------------------
Conflicting Flows                                              186
Potential Capacity                                            1401
Pedestrian Impedance Factor                                   1.00
Movement Capacity                                             1401
Probability of Queue free St.                                 0.97
Maj. L Shared ln. Prob. Queue Free St.                        0.97
-------------------------------------------------------------------------------------

Step 3: TH from Minor St.                        8             11
-------------------------------------------------------------------------------------
Conflicting Flows                              311
Potential Capacity                             607
Pedestrian Impedance Factor                   1.00
Cap. Adj. factor due to Impeding mvmnt        0.97
Movement Capacity                              588
Probability of Queue free St.                 1.00
-------------------------------------------------------------------------------------

Step 4: LT from Minor St.                        7             10
-------------------------------------------------------------------------------------
Conflicting Flows                              274
Potential Capacity                             720
Pedestrian Impedance Factor                   1.00
Maj. L, Min T Impedance factor                0.97
Maj. L, Min T Adj. Imp Factor.                0.98
Cap. Adj. factor due to Impeding mvmnt        0.98
Movement Capacity                              703
-------------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                                 7      8      9     10     11     12
```

```
----------------------------------------------------------------------------------------------
                                      |-------------      ||                   |
                                      |             ------||                   |
                                      |                   ||                   |
v(vph)                                  64      2      97
Movement Capacity                      703    588   1038
Shared Lane Capacity                   698
----------------------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS

Movement                   1      4      7      8      9     10     11     12
----------------------------------------------------------------------------------------------
                                      |-------------      ||                   |
                                      |             ------||                   |
                                      |                   ||                   |
v(vph)                    43            66     97
C m(vph)                1401           698   1038
v/c                     0.03          0.09   0.09
95% queue length
Control Delay            7.7          10.7    8.8
LOS                        A             B      A
Approach Delay                                9.6
Approach LOS                                    A
----------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                   2      5
----------------------------------------------------------------------------------------------
P oj                                    0.97   1.00
V i1                                      39    119
V i2                                       0      0
S i1                                    1700   1700
S i2                                    1700   1700
P* 0j                                   0.97   1.00
D maj left                               7.7    0.0
N number major st lanes                    1      1
Delay, rank 1 mvmts                      0.2    0.0
----------------------------------------------------------------------------------------------
```

```
                    HCS: Unsignalized Intersections Release 3.1b

___________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS__________________________

Analyst: cbh
Intersection: I-15/JEAN SB OFF
Count Date: EXISTING
Time Period: PM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:        1       2       5       6       7       8       9
-----------------------------------------------------------------------------------------------
Volume:          51      97      96      67      62       2     153
HFR:             51      97      96      67      62       2     153
PHF:           1.00    1.00    1.00    1.00    1.00    1.00    1.00
PHV:           0.00    0.00    0.00    0.00    0.00    0.00    0.00
-----------------------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
-----------------------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:    None
# of vehicles:  0

Flared approach Movements:

# of vehicles: Eastbound      0
# of vehicles: Westbound      0


Lane usage for movements 1,2&3 approach:
                Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       Y       Y       N       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Lane usage for movements 4,5&6 approach:
                Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       N       Y       Y       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Lane usage for movements 7,8&9 approach:
                Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       Y       Y       N       N       N       Y       N       N       N

Channelized:      N
Grade:          0.00


Lane usage for movements 10,11&12 approach:
                Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       N       N       N       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Data for Computing Effect of Delay to Major Street Vehicles:
-----------------------------------------------------------------------------------------------
```

```
                                                Northbound               Southbound
Shared ln volume, major th vehicles:             97                      119
Shared ln volume, major rt vehicles:              0                        0
Sat flow rate, major th vehicles:               1700                     1700
Sat flow rate, major rt vehicles:               1700                     1700
Number of major street through lanes:             1                        1


Length of study period, hrs:      0.25

-----------------------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement             1      7      8      9
-----------------------------------------------------------------------------------------------
t c,base            4.1    7.1    6.5    6.2
t  c,hv             1.0    1.0    1.0    1.0
P hv               0.00   0.00   0.00   0.00
t  c,g                     0.2    0.2    0.1
G                  0.00   0.00   0.00   0.00
t  3,lt             0.0    0.7    0.0    0.0
t  c,T:
 1 stage           0.00   0.00   0.00   0.00

t c
 1 stage            4.1    6.4    6.5    6.2

Follow Up Time Calculations:
Movement             1      7      8      9
-----------------------------------------------------------------------------------------------
t  f,base           2.2    3.5    4.0    3.3
t  f,HV             0.9    0.9    0.9    0.9
P hv               0.00   0.00   0.00   0.00
t f                 2.2    3.5    4.0    3.3
-----------------------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                        9              12
-----------------------------------------------------------------------------------------------
Conflicting Flows                               97
Potential Capacity                             965
Pedestrian Impedance Factor                   1.00
Movement Capacity                              965
Probability of Queue free St.                 0.84
-----------------------------------------------------------------------------------------------

Step 2: LT from Major St.                        4               1
-----------------------------------------------------------------------------------------------
Conflicting Flows                                              163
Potential Capacity                                            1428
Pedestrian Impedance Factor                                   1.00
Movement Capacity                                             1428
Probability of Queue free St.                                 0.96
Maj. L Shared ln. Prob. Queue Free St.                        0.96
-----------------------------------------------------------------------------------------------

Step 3: TH from Minor St.                        8              11
-----------------------------------------------------------------------------------------------
Conflicting Flows                              362
Potential Capacity                             569
Pedestrian Impedance Factor                   1.00
Cap. Adj. factor due to Impeding mvmnt        0.96
Movement Capacity                              547
Probability of Queue free St.                 1.00
-----------------------------------------------------------------------------------------------

Step 4: LT from Minor St.                        7              10
-----------------------------------------------------------------------------------------------
Conflicting Flows                              329
Potential Capacity                             670
Pedestrian Impedance Factor                   1.00
Maj. L, Min T Impedance factor                0.96
Maj. L, Min T Adj. Imp Factor.                0.97
Cap. Adj. factor due to Impeding mvmnt        0.97
Movement Capacity                              651
-----------------------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                                  7      8      9     10     11     12
```

```
----------------------------------------------------------------------------------------------
                                      |-------------      ||                   |
                                      |             ------||                   |
                                      |                   ||                   |
v(vph)                                  62      2    153
Movement Capacity                      651    547    965
Shared Lane Capacity                   647
----------------------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS

Movement                   1      4      7      8      9     10     11     12
----------------------------------------------------------------------------------------------
                                      |-------------      ||                   |
                                      |             ------||                   |
                                      |                   ||                   |
v(vph)                    51            64    153
C m(vph)                1428           647    965
v/c                     0.04          0.10   0.16
95% queue length
Control Delay            7.6          11.2    9.4
LOS                        A             B      A
Approach Delay                                9.9
Approach LOS                                    A
----------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                   2      5
----------------------------------------------------------------------------------------------
P oj                                    0.96   1.00
V i1                                      97    119
V i2                                       0      0
S i1                                    1700   1700
S i2                                    1700   1700
P* 0j                                   0.96   1.00
D maj left                               7.6    0.0
N number major st lanes                    1      1
Delay, rank 1 mvmts                      0.3    0.0
----------------------------------------------------------------------------------------------
```

```
                    HCS: Unsignalized Intersections Release 3.1b

___________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS_________________________

Analyst: cbh
Intersection: I-15/JEAN NB OFF
Count Date: EXISTING
Time Period: AM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:         2      3      4      5      10     11     12
-------------------------------------------------------------------------------------------
Volume:           72     89     66    110     10      1     29
HFR:              72     89     66    110     10      1     29
PHF:            1.00   1.00   1.00   1.00   1.00   1.00   1.00
PHV:            0.00   0.00   0.00   0.00   0.00   0.00   0.00
-------------------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
-------------------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:     None
# of vehicles:   0

Flared approach Movements:

# of vehicles: Eastbound       0
# of vehicles: Westbound       0


Lane usage for movements 1,2&3 approach:
               Lane 1                        Lane 2                        Lane 3
       L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------------------
       N       Y       Y       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Lane usage for movements 4,5&6 approach:
               Lane 1                        Lane 2                        Lane 3
       L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------------------
       Y       Y       N       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Lane usage for movements 7,8&9 approach:
               Lane 1                        Lane 2                        Lane 3
       L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------------------
       N       N       N       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Lane usage for movements 10,11&12 approach:
               Lane 1                        Lane 2                        Lane 3
       L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------------------
       Y       Y       N       N       N       Y       N       N       N

Channelized:      N
Grade:          0.00


Data for Computing Effect of Delay to Major Street Vehicles:
-------------------------------------------------------------------------------------------
```

```
                                               Northbound            Southbound
Shared ln volume, major th vehicles:               0                    110
Shared ln volume, major rt vehicles:               0                     0
Sat flow rate, major th vehicles:                1700                  1700
Sat flow rate, major rt vehicles:                1700                  1700
Number of major street through lanes:              1                     1


Length of study period, hrs:      0.25

-----------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement             4      10      11      12
-----------------------------------------------------------------------------------
t c,base           4.1     7.1     6.5     6.2
t  c,hv            1.0     1.0     1.0     1.0
P hv              0.00    0.00    0.00    0.00
t  c,g                     0.2     0.2     0.1
G                 0.00    0.00    0.00    0.00
t  3,lt            0.0     0.7     0.0     0.0
t  c,T:
 1 stage          0.00    0.00    0.00    0.00

t c
 1 stage           4.1     6.4     6.5     6.2

Follow Up Time Calculations:
Movement             4      10      11      12
-----------------------------------------------------------------------------------
t  f,base          2.2     3.5     4.0     3.3
t  f,HV            0.9     0.9     0.9     0.9
P hv              0.00    0.00    0.00    0.00
t f                2.2     3.5     4.0     3.3
-----------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                             9            12
-----------------------------------------------------------------------------------
Conflicting Flows                                                 110
Potential Capacity                                                949
Pedestrian Impedance Factor                                      1.00
Movement Capacity                                                 949
Probability of Queue free St.                                    0.97
-----------------------------------------------------------------------------------

Step 2: LT from Major St.                             4             1
-----------------------------------------------------------------------------------
Conflicting Flows                                   161
Potential Capacity                                 1430
Pedestrian Impedance Factor                        1.00
Movement Capacity                                  1430
Probability of Queue free St.                      0.95
Maj. L Shared ln. Prob. Queue Free St.             0.95
-----------------------------------------------------------------------------------

Step 3: TH from Minor St.                             8            11
-----------------------------------------------------------------------------------
Conflicting Flows                                                 403
Potential Capacity                                                539
Pedestrian Impedance Factor                                      1.00
Cap. Adj. factor due to Impeding mvmnt                           0.95
Movement Capacity                                                 513
Probability of Queue free St.                                    1.00
-----------------------------------------------------------------------------------

Step 4: LT from Minor St.                             7            10
-----------------------------------------------------------------------------------
Conflicting Flows                                                 359
Potential Capacity                                                644
Pedestrian Impedance Factor                                      1.00
Maj. L, Min T Impedance factor                                   0.95
Maj. L, Min T Adj. Imp Factor.                                   0.96
Cap. Adj. factor due to Impeding mvmnt                           0.96
Movement Capacity                                                 620
-----------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                                      7      8      9     10     11     12
```

```
-----------------------------------------------------------------------------------------------
                                      |                   ||------------       |
                                      |                   ||             ------|
                                      |                   ||                   |
v(vph)                                                       10      1     29
Movement Capacity                                           620    513    949
Shared Lane Capacity                                        608
-----------------------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS

Movement                   1      4      7      8      9     10     11     12
-----------------------------------------------------------------------------------------------
                                      |                   ||------------       |
                                      |                   ||             ------|
                                      |                   ||                   |
v(vph)                           66                          11     29
C m(vph)                       1430                         608    949
v/c                            0.05                        0.02   0.03
95% queue length
Control Delay                   7.6                        11.0    8.9
LOS                               A                           B      A
Approach Delay                                                     9.5
Approach LOS                                                         A
-----------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                   2      5
-----------------------------------------------------------------------------------------------
P oj                                    1.00   0.95
V i1                                       0    110
V i2                                       0      0
S i1                                    1700   1700
S i2                                    1700   1700
P* 0j                                   1.00   0.95
D maj left                               0.0    7.6
N number major st lanes                    1      1
Delay, rank 1 mvmts                      0.0    0.4
-----------------------------------------------------------------------------------------------
```

```
                HCS: Unsignalized Intersections Release 3.1b

____________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS____________________________

Analyst: cbh
Intersection: I-15/JEAN NB OFF
Count Date: EXISTING
Time Period: PM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:        2       3       4       5       10      11      12
----------------------------------------------------------------------------------------
Volume:         112     100      48     110       36       2      81
HFR:            112     100      48     110       36       2      81
PHF:           1.00    1.00    1.00    1.00     1.00    1.00    1.00
PHV:           0.00    0.00    0.00    0.00     0.00    0.00    0.00
----------------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
----------------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:     None
# of vehicles:  0

Flared approach Movements:

# of vehicles: Eastbound       0
# of vehicles: Westbound       0


Lane usage for movements 1,2&3 approach:
               Lane 1                 Lane 2                 Lane 3
       L       T       R       L       T       R       L       T       R
----------------------------------------------------------------------------------------
       N       Y       Y       N       N       N       N       N       N

Channelized:       N
Grade:          0.00


Lane usage for movements 4,5&6 approach:
               Lane 1                 Lane 2                 Lane 3
       L       T       R       L       T       R       L       T       R
----------------------------------------------------------------------------------------
       Y       Y       N       N       N       N       N       N       N

Channelized:       N
Grade:          0.00


Lane usage for movements 7,8&9 approach:
               Lane 1                 Lane 2                 Lane 3
       L       T       R       L       T       R       L       T       R
----------------------------------------------------------------------------------------
       N       N       N       N       N       N       N       N       N

Channelized:       N
Grade:          0.00


Lane usage for movements 10,11&12 approach:
               Lane 1                 Lane 2                 Lane 3
       L       T       R       L       T       R       L       T       R
----------------------------------------------------------------------------------------
       Y       Y       N       N       N       Y       N       N       N

Channelized:       N
Grade:          0.00


Data for Computing Effect of Delay to Major Street Vehicles:
----------------------------------------------------------------------------------------
```

```
                                               Northbound              Southbound
Shared ln volume, major th vehicles:               0                      110
Shared ln volume, major rt vehicles:               0                       0
Sat flow rate, major th vehicles:                1700                    1700
Sat flow rate, major rt vehicles:                1700                    1700
Number of major street through lanes:              1                       1


Length of study period, hrs:      0.25

--------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement              4       10      11      12
--------------------------------------------------------------------------------
t c,base             4.1     7.1     6.5     6.2
t  c,hv              1.0     1.0     1.0     1.0
P hv                0.00    0.00    0.00    0.00
t  c,g                       0.2     0.2     0.1
G                   0.00    0.00    0.00    0.00
t  3,lt              0.0     0.7     0.0     0.0
t  c,T:
 1 stage            0.00    0.00    0.00    0.00

t c
 1 stage             4.1     6.4     6.5     6.2

Follow Up Time Calculations:
Movement              4       10      11      12
--------------------------------------------------------------------------------
t  f,base            2.2     3.5     4.0     3.3
t  f,HV              0.9     0.9     0.9     0.9
P hv                0.00    0.00    0.00    0.00
t f                  2.2     3.5     4.0     3.3
--------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                            9             12
--------------------------------------------------------------------------------
Conflicting Flows                                                 110
Potential Capacity                                                949
Pedestrian Impedance Factor                                      1.00
Movement Capacity                                                 949
Probability of Queue free St.                                    0.91
--------------------------------------------------------------------------------

Step 2: LT from Major St.                            4              1
--------------------------------------------------------------------------------
Conflicting Flows                                  212
Potential Capacity                                1370
Pedestrian Impedance Factor                       1.00
Movement Capacity                                 1370
Probability of Queue free St.                     0.96
Maj. L Shared ln. Prob. Queue Free St.            0.96
--------------------------------------------------------------------------------

Step 3: TH from Minor St.                            8             11
--------------------------------------------------------------------------------
Conflicting Flows                                                 418
Potential Capacity                                                529
Pedestrian Impedance Factor                                      1.00
Cap. Adj. factor due to Impeding mvmnt                           0.96
Movement Capacity                                                 509
Probability of Queue free St.                                    1.00
--------------------------------------------------------------------------------

Step 4: LT from Minor St.                            7             10
--------------------------------------------------------------------------------
Conflicting Flows                                                 368
Potential Capacity                                                636
Pedestrian Impedance Factor                                      1.00
Maj. L, Min T Impedance factor                                   0.96
Maj. L, Min T Adj. Imp Factor.                                   0.97
Cap. Adj. factor due to Impeding mvmnt                           0.97
Movement Capacity                                                 618
--------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                                     7      8      9     10     11     12
```

```
-----------------------------------------------------------------------------------------------
                                      |                   ||-------------      |
                                      |                   ||             ------|
                                      |                   ||                   |
v(vph)                                                       36      2     81
Movement Capacity                                           618    509    949
Shared Lane Capacity                                        611
-----------------------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS

Movement                   1      4      7      8      9     10     11     12
-----------------------------------------------------------------------------------------------
                                      |                   ||-------------      |
                                      |                   ||             ------|
                                      |                   ||                   |
v(vph)                           48                          38     81
C m(vph)                       1370                         611    949
v/c                            0.04                        0.06   0.09
95% queue length
Control Delay                   7.7                        11.3    9.1
LOS                               A                           B      A
Approach Delay                                                     9.8
Approach LOS                                                         A
-----------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                   2      5
-----------------------------------------------------------------------------------------------
P oj                                    1.00   0.96
V i1                                       0    110
V i2                                       0      0
S i1                                    1700   1700
S i2                                    1700   1700
P* 0j                                   1.00   0.96
D maj left                               0.0    7.7
N number major st lanes                    1      1
Delay, rank 1 mvmts                      0.0    0.3
-----------------------------------------------------------------------------------------------
```

Attachment C

Growth Rate Calculations

AVERAGE DAILY TRAFFIC VOLUMES

Station	1997	1998	1999
03 11109	31025	32150	34040
03 009	2615	2470	2480
03 015	1700	1700	1900
03 0840	33220	34260	35195
03 0841	35265	35675	37615

AREA GROWTH (PERCENT)

Station	97/98	98/99	AVERAGE
03 11109	3.6%	5.9%	4.9%
03 009	-5.5%	0.4%	-2.6%
03 015	0.0%	11.8%	5.9%
03 0840	3.1%	2.7%	3.0%
03 0841	1.2%	5.4%	3.3%

AREA WIDE AVERAGE GROWTH PER YEAR	**2.89%**
Time to Build Out (in years)	*1.67*
GROWTH RATE	***1.05***

Location of Stations:

03 11109	I-15 permanent recorder
03 009	I-15 nb off ramp of Jean Intg.
03 015	Hwy. 161
03 0840	I -15 between Primm and Jean
03 0841	I-15 between Jean and Sloan

Attachment D

Level of Service—Future

```
              HCS: Unsignalized Intersections Release 3.1b

__________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS_________________________

Analyst: CBH
Intersection: GOOD SPRINGS/SANDY VALLEY
Count Date: FUTURE
Time Period: AM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:         1      2      5      6     10     12
-------------------------------------------------------------------------------
Volume:           25      7     13      1      1     72
HFR:              25      7     13      1      1     72
PHF:            1.00   1.00   1.00   1.00   1.00   1.00
PHV:            0.00   0.00   0.00   0.00   0.00   0.00
-------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
-------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:    None
# of vehicles:  0

Flared approach Movements:

# of vehicles: Eastbound      0
# of vehicles: Westbound      0


Lane usage for movements 1,2&3 approach:
              Lane 1                  Lane 2                  Lane 3
      L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------
      Y       Y       N       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Lane usage for movements 4,5&6 approach:
              Lane 1                  Lane 2                  Lane 3
      L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------
      N       Y       Y       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Lane usage for movements 7,8&9 approach:
              Lane 1                  Lane 2                  Lane 3
      L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------
      N       N       N       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Lane usage for movements 10,11&12 approach:
              Lane 1                  Lane 2                  Lane 3
      L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------
      Y       N       Y       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Data for Computing Effect of Delay to Major Street Vehicles:
-------------------------------------------------------------------------------
```

```
                                           Northbound              Southbound
Shared ln volume, major th vehicles:            7                      0
Shared ln volume, major rt vehicles:            0                      0
Sat flow rate, major th vehicles:            1700                   1700
Sat flow rate, major rt vehicles:            1700                   1700
Number of major street through lanes:           1                      1


Length of study period, hrs:      0.25

--------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement             1      10      12
--------------------------------------------------------------------------------
t c,base           4.1     7.1     6.2
t  c,hv            1.0     1.0     1.0
P hv              0.00    0.00    0.00
t  c,g                     0.2     0.1
G                 0.00    0.00    0.00
t  3,lt            0.0     0.7     0.0
t  c,T:
 1 stage          0.00    0.00    0.00

t c
 1 stage           4.1     6.4     6.2

Follow Up Time Calculations:
Movement             1      10      12
--------------------------------------------------------------------------------
t  f,base          2.2     3.5     3.3
t  f,HV            0.9     0.9     0.9
P hv              0.00    0.00    0.00
t f                2.2     3.5     3.3
--------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                        9             12
--------------------------------------------------------------------------------
Conflicting Flows                                              14
Potential Capacity                                           1072
Pedestrian Impedance Factor                                  1.00
Movement Capacity                                            1072
Probability of Queue free St.                                0.93
--------------------------------------------------------------------------------

Step 2: LT from Major St.                        4              1
--------------------------------------------------------------------------------
Conflicting Flows                                              14
Potential Capacity                                           1617
Pedestrian Impedance Factor                                  1.00
Movement Capacity                                            1617
Probability of Queue free St.                                0.98
Maj. L Shared ln. Prob. Queue Free St.                       0.98
--------------------------------------------------------------------------------

Step 4: LT from Minor St.                        7             10
--------------------------------------------------------------------------------
Conflicting Flows                                              71
Potential Capacity                                            939
Pedestrian Impedance Factor                                  1.00
Maj. L, Min T Impedance factor                               0.98
Maj. L, Min T Adj. Imp Factor.                               0.99
Cap. Adj. factor due to Impeding mvmnt                       0.99
Movement Capacity                                             928
--------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                           7      8      9     10     11     12
--------------------------------------------------------------------------------
                                 |                   ||------      ------|
                                 |                   ||                  |
                                 |                   ||                  |
v(vph)                                                  1             72
Movement Capacity                                     928           1072
Shared Lane Capacity                                 1070
--------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS
```

```
Movement                    1      4      7      8      9     10     11     12
-------------------------------------------------------------------------------------------------
                                         |                   ||------       ------|
                                         |                   ||                   |
                                         |                   ||                   |
v(vph)                     25                                   73
C m(vph)                 1617                                 1070
v/c                      0.02                                 0.07
95% queue length
Control Delay             7.3                                  8.6
LOS                        A                                     A
Approach Delay                                                        8.6
Approach LOS                                                            A
-------------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                    2      5
-------------------------------------------------------------------------------------------------
P oj                                     0.98   1.00
V i1                                        7      0
V i2                                        0      0
S i1                                     1700   1700
S i2                                     1700   1700
P* 0j                                    0.98   1.00
D maj left                                7.3    0.0
N number major st lanes                     1      1
Delay, rank 1 mvmts                       0.1    0.0
-------------------------------------------------------------------------------------------------
```

```
                HCS: Unsignalized Intersections Release 3.1b

___________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS__________________________

Analyst: CBH
Intersection: GOOD SPRINGS/SANDY VALLEY
Count Date: FUTURE
Time Period: PM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:        1      2      5      6      10     12
-----------------------------------------------------------------------------------------------
Volume:          98     26      7      3       1     26
HFR:             98     26      7      3       1     26
PHF:           1.00   1.00   1.00   1.00    1.00   1.00
PHV:           0.00   0.00   0.00   0.00    0.00   0.00
-----------------------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
-----------------------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:    None
# of vehicles:  0

Flared approach Movements:

# of vehicles: Eastbound      0
# of vehicles: Westbound      0


Lane usage for movements 1,2&3 approach:
              Lane 1                  Lane 2                  Lane 3
       L      T      R      L      T      R      L      T      R
-----------------------------------------------------------------------------------------------
       Y      Y      N      N      N      N      N      N      N

Channelized:     N
Grade:        0.00


Lane usage for movements 4,5&6 approach:
              Lane 1                  Lane 2                  Lane 3
       L      T      R      L      T      R      L      T      R
-----------------------------------------------------------------------------------------------
       N      Y      Y      N      N      N      N      N      N

Channelized:     N
Grade:        0.00


Lane usage for movements 7,8&9 approach:
              Lane 1                  Lane 2                  Lane 3
       L      T      R      L      T      R      L      T      R
-----------------------------------------------------------------------------------------------
       N      N      N      N      N      N      N      N      N

Channelized:     N
Grade:        0.00


Lane usage for movements 10,11&12 approach:
              Lane 1                  Lane 2                  Lane 3
       L      T      R      L      T      R      L      T      R
-----------------------------------------------------------------------------------------------
       Y      N      Y      N      N      N      N      N      N

Channelized:     N
Grade:        0.00


Data for Computing Effect of Delay to Major Street Vehicles:
-----------------------------------------------------------------------------------------------
```

```
                                                Northbound           Southbound
Shared ln volume, major th vehicles:             26                   0
Shared ln volume, major rt vehicles:             0                    0
Sat flow rate, major th vehicles:               1700                 1700
Sat flow rate, major rt vehicles:               1700                 1700
Number of major street through lanes:            1                    1


Length of study period, hrs:      0.25

---------------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement               1      10      12
---------------------------------------------------------------------------------------
t c,base             4.1     7.1     6.2
t  c,hv              1.0     1.0     1.0
P hv                0.00    0.00    0.00
t  c,g                       0.2     0.1
G                   0.00    0.00    0.00
t  3,lt              0.0     0.7     0.0
t  c,T:
 1 stage            0.00    0.00    0.00

t c
 1 stage             4.1     6.4     6.2

Follow Up Time Calculations:
Movement               1      10      12
---------------------------------------------------------------------------------------
t  f,base            2.2     3.5     3.3
t  f,HV              0.9     0.9     0.9
P hv                0.00    0.00    0.00
t f                  2.2     3.5     3.3
---------------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                              9             12
---------------------------------------------------------------------------------------
Conflicting Flows                                                     9
Potential Capacity                                                  1079
Pedestrian Impedance Factor                                         1.00
Movement Capacity                                                   1079
Probability of Queue free St.                                       0.98
---------------------------------------------------------------------------------------

Step 2: LT from Major St.                              4              1
---------------------------------------------------------------------------------------
Conflicting Flows                                                    10
Potential Capacity                                                  1623
Pedestrian Impedance Factor                                         1.00
Movement Capacity                                                   1623
Probability of Queue free St.                                       0.94
Maj. L Shared ln. Prob. Queue Free St.                              0.94
---------------------------------------------------------------------------------------

Step 4: LT from Minor St.                              7             10
---------------------------------------------------------------------------------------
Conflicting Flows                                                    231
Potential Capacity                                                   762
Pedestrian Impedance Factor                                         1.00
Maj. L, Min T Impedance factor                                      0.94
Maj. L, Min T Adj. Imp Factor.                                      0.95
Cap. Adj. factor due to Impeding mvmnt                              0.95
Movement Capacity                                                    726
---------------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                                    7      8      9      10     11     12
---------------------------------------------------------------------------------------
                                          |                   ||------       ------|
                                          |                   ||                   |
                                          |                   ||                   |
v(vph)                                                            1            26
Movement Capacity                                                726          1079
Shared Lane Capacity                                            1060
---------------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS
```

```
Movement                        1       4       7       8       9      10      11      12
-------------------------------------------------------------------------------------------
                                             |                      ||------       ------|
                                             |                      ||                   |
                                             |                      ||                   |
v(vph)                         98                                          27
C m(vph)                     1623                                        1060
v/c                          0.06                                        0.03
95% queue length
Control Delay                 7.4                                         8.5
LOS                             A                                           A
Approach Delay                                                                    8.5
Approach LOS                                                                        A
-------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                    2       5
-------------------------------------------------------------------------------------------
P oj                                     0.94    1.00
V i1                                       26       0
V i2                                        0       0
S i1                                     1700    1700
S i2                                     1700    1700
P* 0j                                    0.94    1.00
D maj left                                7.4     0.0
N number major st lanes                     1       1
Delay, rank 1 mvmts                       0.5     0.0
-------------------------------------------------------------------------------------------
```

```
              HCS: Unsignalized Intersections Release 3.1b

___________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS__________________________

Analyst: cbh
Intersection: I-15/JEAN SB OFF
Count Date: FUTURE
Time Period: AM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:         1      2      5      6      7      8      9
-------------------------------------------------------------------------------------------
Volume:           45     41    118     78     67      2    102
HFR:              45     41    118     78     67      2    102
PHF:            1.00   1.00   1.00   1.00   1.00   1.00   1.00
PHV:            0.00   0.00   0.00   0.00   0.00   0.00   0.00
-------------------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
-------------------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:     None
# of vehicles:   0

Flared approach Movements:

# of vehicles: Eastbound      0
# of vehicles: Westbound      0


Lane usage for movements 1,2&3 approach:
                  Lane 1                   Lane 2                   Lane 3
       L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------------------
       Y       Y       N       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Lane usage for movements 4,5&6 approach:
                  Lane 1                   Lane 2                   Lane 3
       L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------------------
       N       Y       Y       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Lane usage for movements 7,8&9 approach:
                  Lane 1                   Lane 2                   Lane 3
       L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------------------
       Y       Y       N       N       N       Y       N       N       N

Channelized:      N
Grade:          0.00


Lane usage for movements 10,11&12 approach:
                  Lane 1                   Lane 2                   Lane 3
       L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------------------
       N       N       N       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Data for Computing Effect of Delay to Major Street Vehicles:
-------------------------------------------------------------------------------------------
```

```
                                              Northbound              Southbound
Shared ln volume, major th vehicles:             41                      119
Shared ln volume, major rt vehicles:              0                        0
Sat flow rate, major th vehicles:              1700                     1700
Sat flow rate, major rt vehicles:              1700                     1700
Number of major street through lanes:             1                        1


Length of study period, hrs:       0.25

------------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement              1      7      8      9
------------------------------------------------------------------------------------
t c,base             4.1    7.1    6.5    6.2
t  c,hv              1.0    1.0    1.0    1.0
P hv                0.00   0.00   0.00   0.00
t  c,g                      0.2    0.2    0.1
G                   0.00   0.00   0.00   0.00
t  3,lt              0.0    0.7    0.0    0.0
t  c,T:
 1 stage            0.00   0.00   0.00   0.00

t c
 1 stage             4.1    6.4    6.5    6.2

Follow Up Time Calculations:
Movement              1      7      8      9
------------------------------------------------------------------------------------
t  f,base            2.2    3.5    4.0    3.3
t  f,HV              0.9    0.9    0.9    0.9
P hv                0.00   0.00   0.00   0.00
t f                  2.2    3.5    4.0    3.3
------------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                          9              12
------------------------------------------------------------------------------------
Conflicting Flows                                 41
Potential Capacity                              1036
Pedestrian Impedance Factor                     1.00
Movement Capacity                               1036
Probability of Queue free St.                   0.90
------------------------------------------------------------------------------------

Step 2: LT from Major St.                          4               1
------------------------------------------------------------------------------------
Conflicting Flows                                                196
Potential Capacity                                              1389
Pedestrian Impedance Factor                                     1.00
Movement Capacity                                               1389
Probability of Queue free St.                                   0.97
Maj. L Shared ln. Prob. Queue Free St.                          0.97
------------------------------------------------------------------------------------

Step 3: TH from Minor St.                          8              11
------------------------------------------------------------------------------------
Conflicting Flows                                327
Potential Capacity                               595
Pedestrian Impedance Factor                     1.00
Cap. Adj. factor due to Impeding mvmnt          0.97
Movement Capacity                                575
Probability of Queue free St.                   1.00
------------------------------------------------------------------------------------

Step 4: LT from Minor St.                          7              10
------------------------------------------------------------------------------------
Conflicting Flows                                288
Potential Capacity                               707
Pedestrian Impedance Factor                     1.00
Maj. L, Min T Impedance factor                  0.97
Maj. L, Min T Adj. Imp Factor.                  0.97
Cap. Adj. factor due to Impeding mvmnt          0.97
Movement Capacity                                689
------------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                                   7      8      9     10     11     12
```

```
-----------------------------------------------------------------------------------------------
                                      |-------------          ||                    |
                                      |                 ------||                    |
                                      |                       ||                    |
v(vph)                                   67       2      102
Movement Capacity                       689     575     1036
Shared Lane Capacity                    685
-----------------------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS

Movement                    1      4      7      8      9     10     11     12
-----------------------------------------------------------------------------------------------
                                      |-------------          ||                    |
                                      |                 ------||                    |
                                      |                       ||                    |
v(vph)                      45             69    102
C m(vph)                  1389            685   1036
v/c                       0.03           0.10   0.10
95% queue length
Control Delay              7.7           10.8    8.9
LOS                          A              B      A
Approach Delay                                   9.7
Approach LOS                                       A
-----------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                    2      5
-----------------------------------------------------------------------------------------------
P oj                                     0.97   1.00
V i1                                       41    119
V i2                                        0      0
S i1                                     1700   1700
S i2                                     1700   1700
P* 0j                                    0.97   1.00
D maj left                                7.7    0.0
N number major st lanes                     1      1
Delay, rank 1 mvmts                       0.3    0.0
-----------------------------------------------------------------------------------------------
```

```
                HCS: Unsignalized Intersections Release 3.1b

___________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS__________________________

Analyst: cbh
Intersection: I-15/JEAN SB OFF
Count Date: FUTURE
Time Period: PM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:        1       2       5       6       7       8       9
-----------------------------------------------------------------------------------------------
Volume:          53     102     101      70      65       2     161
HFR:             53     102     101      70      65       2     161
PHF:           1.00    1.00    1.00    1.00    1.00    1.00    1.00
PHV:           0.00    0.00    0.00    0.00    0.00    0.00    0.00
-----------------------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
-----------------------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:     None
# of vehicles:   0

Flared approach Movements:

# of vehicles: Eastbound        0
# of vehicles: Westbound        0


Lane usage for movements 1,2&3 approach:
               Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       Y       Y       N       N       N       N       N       N       N

Channelized:     N
Grade:         0.00


Lane usage for movements 4,5&6 approach:
               Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       N       Y       Y       N       N       N       N       N       N

Channelized:     N
Grade:         0.00


Lane usage for movements 7,8&9 approach:
               Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       Y       Y       N       N       N       Y       N       N       N

Channelized:     N
Grade:         0.00


Lane usage for movements 10,11&12 approach:
               Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       N       N       N       N       N       N       N       N       N

Channelized:     N
Grade:         0.00


Data for Computing Effect of Delay to Major Street Vehicles:
-----------------------------------------------------------------------------------------------
```

```
                                                Northbound               Southbound
Shared ln volume, major th vehicles:              102                     119
Shared ln volume, major rt vehicles:                0                       0
Sat flow rate, major th vehicles:                1700                    1700
Sat flow rate, major rt vehicles:                1700                    1700
Number of major street through lanes:               1                       1


Length of study period, hrs:      0.25

-----------------------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement           1      7      8      9
-----------------------------------------------------------------------------------------------
t c,base         4.1    7.1    6.5    6.2
t  c,hv          1.0    1.0    1.0    1.0
P hv            0.00   0.00   0.00   0.00
t  c,g                  0.2    0.2    0.1
G               0.00   0.00   0.00   0.00
t  3,lt          0.0    0.7    0.0    0.0
t  c,T:
 1 stage        0.00   0.00   0.00   0.00

t  c
 1 stage         4.1    6.4    6.5    6.2

Follow Up Time Calculations:
Movement           1      7      8      9
-----------------------------------------------------------------------------------------------
t  f,base        2.2    3.5    4.0    3.3
t  f,HV          0.9    0.9    0.9    0.9
P hv            0.00   0.00   0.00   0.00
t  f             2.2    3.5    4.0    3.3
-----------------------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                           9              12
-----------------------------------------------------------------------------------------------
Conflicting Flows                                 102
Potential Capacity                                959
Pedestrian Impedance Factor                      1.00
Movement Capacity                                 959
Probability of Queue free St.                    0.83
-----------------------------------------------------------------------------------------------

Step 2: LT from Major St.                           4               1
-----------------------------------------------------------------------------------------------
Conflicting Flows                                                  171
Potential Capacity                                                1418
Pedestrian Impedance Factor                                       1.00
Movement Capacity                                                 1418
Probability of Queue free St.                                     0.96
Maj. L Shared ln. Prob. Queue Free St.                            0.96
-----------------------------------------------------------------------------------------------

Step 3: TH from Minor St.                           8              11
-----------------------------------------------------------------------------------------------
Conflicting Flows                                 379
Potential Capacity                                556
Pedestrian Impedance Factor                      1.00
Cap. Adj. factor due to Impeding mvmnt           0.96
Movement Capacity                                 534
Probability of Queue free St.                    1.00
-----------------------------------------------------------------------------------------------

Step 4: LT from Minor St.                           7               10
-----------------------------------------------------------------------------------------------
Conflicting Flows                                 344
Potential Capacity                                657
Pedestrian Impedance Factor                      1.00
Maj. L, Min T Impedance factor                   0.96
Maj. L, Min T Adj. Imp Factor.                   0.97
Cap. Adj. factor due to Impeding mvmnt           0.97
Movement Capacity                                 637
-----------------------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                                  7      8      9     10     11     12
```

```
----------------------------------------------------------------------------------------------
                                      |-------------      ||                  |
                                      |             ------||                  |
                                      |                   ||                  |
v(vph)                                  65      2    161
Movement Capacity                      637    534    959
Shared Lane Capacity                   633
----------------------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS

Movement                   1      4      7      8      9     10     11     12
----------------------------------------------------------------------------------------------
                                      |-------------      ||                  |
                                      |             ------||                  |
                                      |                   ||                  |
v(vph)                    53            67    161
C m(vph)                1418           633    959
v/c                     0.04          0.11   0.17
95% queue length
Control Delay            7.6          11.4    9.5
LOS                        A             B      A
Approach Delay                               10.1
Approach LOS                                    B
----------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                   2      5
----------------------------------------------------------------------------------------------
P oj                                    0.96   1.00
V i1                                     102    119
V i2                                       0      0
S i1                                    1700   1700
S i2                                    1700   1700
P* 0j                                   0.96   1.00
D maj left                               7.6    0.0
N number major st lanes                    1      1
Delay, rank 1 mvmts                      0.3    0.0
----------------------------------------------------------------------------------------------
```

```
                HCS: Unsignalized Intersections Release 3.1b

__________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS_________________________

Analyst: cbh
Intersection: I-15/JEAN NB OFF
Count Date: fUTURE
Time Period: AM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:       2      3      4      5     10     11     12
---------------------------------------------------------------------------------------------
Volume:         75     93     69    116     11      1     30
HFR:            75     93     69    116     11      1     30
PHF:          1.00   1.00   1.00   1.00   1.00   1.00   1.00
PHV:          0.00   0.00   0.00   0.00   0.00   0.00   0.00
---------------------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
---------------------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:    None
# of vehicles:  0

Flared approach Movements:

# of vehicles: Eastbound      0
# of vehicles: Westbound      0


Lane usage for movements 1,2&3 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
---------------------------------------------------------------------------------------------
       N       Y       Y       N       N       N       N       N       N

Channelized:      N
Grade:         0.00


Lane usage for movements 4,5&6 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
---------------------------------------------------------------------------------------------
       Y       Y       N       N       N       N       N       N       N

Channelized:      N
Grade:         0.00


Lane usage for movements 7,8&9 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
---------------------------------------------------------------------------------------------
       N       N       N       N       N       N       N       N       N

Channelized:      N
Grade:         0.00


Lane usage for movements 10,11&12 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
---------------------------------------------------------------------------------------------
       Y       Y       N       N       N       Y       N       N       N

Channelized:      N
Grade:         0.00


Data for Computing Effect of Delay to Major Street Vehicles:
---------------------------------------------------------------------------------------------
```

```
                                                  Northbound               Southbound
Shared ln volume, major th vehicles:                  0                       116
Shared ln volume, major rt vehicles:                  0                        0
Sat flow rate, major th vehicles:                   1700                     1700
Sat flow rate, major rt vehicles:                   1700                     1700
Number of major street through lanes:                 1                        1


Length of study period, hrs:      0.25

-----------------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement             4      10      11      12
-----------------------------------------------------------------------------------------
t c,base            4.1     7.1     6.5     6.2
t  c,hv             1.0     1.0     1.0     1.0
P hv               0.00    0.00    0.00    0.00
t  c,g                      0.2     0.2     0.1
G                  0.00    0.00    0.00    0.00
t  3,lt             0.0     0.7     0.0     0.0
t  c,T:
 1 stage           0.00    0.00    0.00    0.00

t c
 1 stage            4.1     6.4     6.5     6.2

Follow Up Time Calculations:
Movement             4      10      11      12
-----------------------------------------------------------------------------------------
t  f,base           2.2     3.5     4.0     3.3
t  f,HV             0.9     0.9     0.9     0.9
P hv               0.00    0.00    0.00    0.00
t f                 2.2     3.5     4.0     3.3
-----------------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                          9              12
-----------------------------------------------------------------------------------------
Conflicting Flows                                                116
Potential Capacity                                               942
Pedestrian Impedance Factor                                     1.00
Movement Capacity                                                942
Probability of Queue free St.                                   0.97
-----------------------------------------------------------------------------------------

Step 2: LT from Major St.                          4               1
-----------------------------------------------------------------------------------------
Conflicting Flows                                168
Potential Capacity                              1422
Pedestrian Impedance Factor                     1.00
Movement Capacity                               1422
Probability of Queue free St.                   0.95
Maj. L Shared ln. Prob. Queue Free St.          0.95
-----------------------------------------------------------------------------------------

Step 3: TH from Minor St.                          8              11
-----------------------------------------------------------------------------------------
Conflicting Flows                                                422
Potential Capacity                                               526
Pedestrian Impedance Factor                                     1.00
Cap. Adj. factor due to Impeding mvmnt                          0.95
Movement Capacity                                                499
Probability of Queue free St.                                   1.00
-----------------------------------------------------------------------------------------

Step 4: LT from Minor St.                          7              10
-----------------------------------------------------------------------------------------
Conflicting Flows                                                376
Potential Capacity                                               630
Pedestrian Impedance Factor                                     1.00
Maj. L, Min T Impedance factor                                  0.95
Maj. L, Min T Adj. Imp Factor.                                  0.96
Cap. Adj. factor due to Impeding mvmnt                          0.96
Movement Capacity                                                605
-----------------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                                 7      8      9     10     11     12
```

```
------------------------------------------------------------------------------------------------
                                       |                   ||-------------      |
                                       |                   ||             ------|
                                       |                   ||                   |
v(vph)                                                        11      1     30
Movement Capacity                                            605    499    942
Shared Lane Capacity                                         594
------------------------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS

Movement                    1      4      7      8      9     10     11     12
------------------------------------------------------------------------------------------------
                                       |                   ||-------------      |
                                       |                   ||             ------|
                                       |                   ||                   |
v(vph)                            69                          12     30
C m(vph)                        1422                         594    942
v/c                             0.05                        0.02   0.03
95% queue length
Control Delay                    7.7                        11.2    8.9
LOS                                A                           B      A
Approach Delay                                                      9.6
Approach LOS                                                          A
------------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                    2      5
------------------------------------------------------------------------------------------------
P oj                                     1.00   0.95
V i1                                        0    116
V i2                                        0      0
S i1                                     1700   1700
S i2                                     1700   1700
P* 0j                                    1.00   0.95
D maj left                                0.0    7.7
N number major st lanes                     1      1
Delay, rank 1 mvmts                       0.0    0.4
------------------------------------------------------------------------------------------------
```

```
                  HCS: Unsignalized Intersections Release 3.1b

__________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS__________________________

Analyst: cbh
Intersection: I-15/JEAN NB OFF
Count Date: fUTURE
Time Period: PM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:        2      3      4      5      10     11     12
-----------------------------------------------------------------------------------------------
Volume:          118    105     50    116     38      2     85
HFR:             118    105     50    116     38      2     85
PHF:            1.00   1.00   1.00   1.00   1.00   1.00   1.00
PHV:            0.00   0.00   0.00   0.00   0.00   0.00   0.00
-----------------------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
-----------------------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:    None
# of vehicles:  0

Flared approach Movements:

# of vehicles: Eastbound      0
# of vehicles: Westbound      0


Lane usage for movements 1,2&3 approach:
              Lane 1                 Lane 2                 Lane 3
       L      T       R       L      T       R       L      T       R
-----------------------------------------------------------------------------------------------
       N      Y       Y       N      N       N       N      N       N

Channelized:      N
Grade:         0.00


Lane usage for movements 4,5&6 approach:
              Lane 1                 Lane 2                 Lane 3
       L      T       R       L      T       R       L      T       R
-----------------------------------------------------------------------------------------------
       Y      Y       N       N      N       N       N      N       N

Channelized:      N
Grade:         0.00


Lane usage for movements 7,8&9 approach:
              Lane 1                 Lane 2                 Lane 3
       L      T       R       L      T       R       L      T       R
-----------------------------------------------------------------------------------------------
       N      N       N       N      N       N       N      N       N

Channelized:      N
Grade:         0.00


Lane usage for movements 10,11&12 approach:
              Lane 1                 Lane 2                 Lane 3
       L      T       R       L      T       R       L      T       R
-----------------------------------------------------------------------------------------------
       Y      Y       N       N      N       Y       N      N       N

Channelized:      N
Grade:         0.00


Data for Computing Effect of Delay to Major Street Vehicles:
-----------------------------------------------------------------------------------------------
```

```
                                            Northbound              Southbound
Shared ln volume, major th vehicles:            0                     116
Shared ln volume, major rt vehicles:            0                       0
Sat flow rate, major th vehicles:             1700                    1700
Sat flow rate, major rt vehicles:             1700                    1700
Number of major street through lanes:           1                       1


Length of study period, hrs:      0.25

--------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement            4      10      11      12
--------------------------------------------------------------------------------
t c,base          4.1     7.1     6.5     6.2
t  c,hv           1.0     1.0     1.0     1.0
P hv             0.00    0.00    0.00    0.00
t  c,g                    0.2     0.2     0.1
G                0.00    0.00    0.00    0.00
t  3,lt           0.0     0.7     0.0     0.0
t  c,T:
 1 stage         0.00    0.00    0.00    0.00

t c
 1 stage          4.1     6.4     6.5     6.2

Follow Up Time Calculations:
Movement            4      10      11      12
--------------------------------------------------------------------------------
t  f,base         2.2     3.5     4.0     3.3
t  f,HV           0.9     0.9     0.9     0.9
P hv             0.00    0.00    0.00    0.00
t  f              2.2     3.5     4.0     3.3
--------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                          9                12
--------------------------------------------------------------------------------
Conflicting Flows                                                  116
Potential Capacity                                                 942
Pedestrian Impedance Factor                                       1.00
Movement Capacity                                                  942
Probability of Queue free St.                                     0.91
--------------------------------------------------------------------------------

Step 2: LT from Major St.                          4                 1
--------------------------------------------------------------------------------
Conflicting Flows                                223
Potential Capacity                              1358
Pedestrian Impedance Factor                     1.00
Movement Capacity                               1358
Probability of Queue free St.                   0.96
Maj. L Shared ln. Prob. Queue Free St.          0.96
--------------------------------------------------------------------------------

Step 3: TH from Minor St.                          8                11
--------------------------------------------------------------------------------
Conflicting Flows                                                  439
Potential Capacity                                                 515
Pedestrian Impedance Factor                                       1.00
Cap. Adj. factor due to Impeding mvmnt                            0.96
Movement Capacity                                                  494
Probability of Queue free St.                                     1.00
--------------------------------------------------------------------------------

Step 4: LT from Minor St.                          7                10
--------------------------------------------------------------------------------
Conflicting Flows                                                  387
Potential Capacity                                                 621
Pedestrian Impedance Factor                                       1.00
Maj. L, Min T Impedance factor                                    0.96
Maj. L, Min T Adj. Imp Factor.                                    0.97
Cap. Adj. factor due to Impeding mvmnt                            0.97
Movement Capacity                                                  602
--------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                              7      8      9     10     11     12
```

```
--------------------------------------------------------------------------------------------------
                                       |                   ||-------------       |
                                       |                   ||              ------|
                                       |                   ||                    |
v(vph)                                                         38      2     85
Movement Capacity                                             602    494    942
Shared Lane Capacity                                          595
--------------------------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS

Movement                    1      4      7      8      9      10     11     12
--------------------------------------------------------------------------------------------------
                                       |                   ||-------------       |
                                       |                   ||              ------|
                                       |                   ||                    |
v(vph)                            50                           40     85
C m(vph)                        1358                          595    942
v/c                             0.04                         0.07   0.09
95% queue length
Control Delay                    7.8                         11.5    9.2
LOS                                A                            B      A
Approach Delay                                                       9.9
Approach LOS                                                           A
--------------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                    2      5
--------------------------------------------------------------------------------------------------
P oj                                     1.00   0.96
V i1                                        0    116
V i2                                        0      0
S i1                                     1700   1700
S i2                                     1700   1700
P* 0j                                    1.00   0.96
D maj left                                0.0    7.8
N number major st lanes                     1      1
Delay, rank 1 mvmts                       0.0    0.3
--------------------------------------------------------------------------------------------------
```

```
                 HCS: Unsignalized Intersections Release 3.1b
_____________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS__________________________

Analyst: CBH
Intersection: GOOD SPRINGS/SANDY VALLEY
Count Date: FUTURE + OPERATION
Time Period: AM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:        1       2       5       6      10      12
-------------------------------------------------------------------------------------------
Volume:          55       7      13       1       1      72
HFR:             55       7      13       1       1      72
PHF:           1.00    1.00    1.00    1.00    1.00    1.00
PHV:           0.00    0.00    0.00    0.00    0.00    0.00
-------------------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
-------------------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:     None
# of vehicles:  0

Flared approach Movements:

# of vehicles: Eastbound      0
# of vehicles: Westbound      0


Lane usage for movements 1,2&3 approach:
               Lane 1                      Lane 2                      Lane 3
       L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------------------
       Y       Y       N       N       N       N       N       N       N

Channelized:       N
Grade:         0.00


Lane usage for movements 4,5&6 approach:
               Lane 1                      Lane 2                      Lane 3
       L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------------------
       N       Y       Y       N       N       N       N       N       N

Channelized:       N
Grade:         0.00


Lane usage for movements 7,8&9 approach:
               Lane 1                      Lane 2                      Lane 3
       L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------------------
       N       N       N       N       N       N       N       N       N

Channelized:       N
Grade:         0.00


Lane usage for movements 10,11&12 approach:
               Lane 1                      Lane 2                      Lane 3
       L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------------------
       Y       N       Y       N       N       N       N       N       N

Channelized:       N
Grade:         0.00


Data for Computing Effect of Delay to Major Street Vehicles:
-------------------------------------------------------------------------------------------
```

```
                                             Northbound              Southbound
Shared ln volume, major th vehicles:             7                       0
Shared ln volume, major rt vehicles:             0                       0
Sat flow rate, major th vehicles:              1700                    1700
Sat flow rate, major rt vehicles:              1700                    1700
Number of major street through lanes:            1                       1


Length of study period, hrs:      0.25

-------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement             1      10      12
-------------------------------------------------------------------------------
t c,base           4.1     7.1     6.2
t  c,hv            1.0     1.0     1.0
P hv              0.00    0.00    0.00
t  c,g                     0.2     0.1
G                 0.00    0.00    0.00
t  3,lt            0.0     0.7     0.0
t  c,T:
 1 stage          0.00    0.00    0.00

t c
 1 stage           4.1     6.4     6.2

Follow Up Time Calculations:
Movement             1      10      12
-------------------------------------------------------------------------------
t  f,base          2.2     3.5     3.3
t  f,HV            0.9     0.9     0.9
P hv              0.00    0.00    0.00
t f                2.2     3.5     3.3
-------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                           9             12
-------------------------------------------------------------------------------
Conflicting Flows                                                 14
Potential Capacity                                              1072
Pedestrian Impedance Factor                                     1.00
Movement Capacity                                               1072
Probability of Queue free St.                                   0.93
-------------------------------------------------------------------------------

Step 2: LT from Major St.                           4              1
-------------------------------------------------------------------------------
Conflicting Flows                                                 14
Potential Capacity                                              1617
Pedestrian Impedance Factor                                     1.00
Movement Capacity                                               1617
Probability of Queue free St.                                   0.97
Maj. L Shared ln. Prob. Queue Free St.                          0.97
-------------------------------------------------------------------------------

Step 4: LT from Minor St.                           7             10
-------------------------------------------------------------------------------
Conflicting Flows                                                131
Potential Capacity                                               868
Pedestrian Impedance Factor                                     1.00
Maj. L, Min T Impedance factor                                  0.97
Maj. L, Min T Adj. Imp Factor.                                  0.97
Cap. Adj. factor due to Impeding mvmnt                          0.97
Movement Capacity                                                846
-------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                             7      8      9     10      11     12
-------------------------------------------------------------------------------
                                   |                 ||------       ------|
                                   |                 ||                   |
                                   |                 ||                   |
v(vph)                                                    1             72
Movement Capacity                                       846           1072
Shared Lane Capacity                                   1069
-------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS
```

```
Movement                        1         4         7         8         9        10        11        12
--------------------------------------------------------------------------------------------------------
                                                 |                            ||------            ------|
                                                 |                            ||                        |
                                                 |                            ||                        |
v(vph)                          55                                                73
C m(vph)                      1617                                              1069
v/c                           0.03                                              0.07
95% queue length
Control Delay                  7.3                                               8.6
LOS                              A                                                 A
Approach Delay                                                                          8.6
Approach LOS                                                                              A
--------------------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                          2         5
--------------------------------------------------------------------------------------------------------
P oj                                           0.97      1.00
V i1                                              7         0
V i2                                              0         0
S i1                                           1700      1700
S i2                                           1700      1700
P* 0j                                          0.97      1.00
D maj left                                      7.3       0.0
N number major st lanes                           1         1
Delay, rank 1 mvmts                             0.2       0.0
--------------------------------------------------------------------------------------------------------
```

```
                   HCS: Unsignalized Intersections Release 3.1b

___________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS__________________________

Analyst: CBH
Intersection: GOOD SPRINGS/SANDY VALLEY
Count Date: FUTURE + OPERATION
Time Period: PM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:        1      2      5      6      10     12
-------------------------------------------------------------------------------
Volume:          98     26      7      3       1     56
HFR:             98     26      7      3       1     56
PHF:           1.00   1.00   1.00   1.00    1.00   1.00
PHV:           0.00   0.00   0.00   0.00    0.00   0.00
-------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
-------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:    None
# of vehicles:  0

Flared approach Movements:

# of vehicles: Eastbound      0
# of vehicles: Westbound      0


Lane usage for movements 1,2&3 approach:
               Lane 1                 Lane 2                 Lane 3
       L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------
       Y       Y       N       N       N       N       N       N       N

Channelized:     N
Grade:         0.00


Lane usage for movements 4,5&6 approach:
               Lane 1                 Lane 2                 Lane 3
       L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------
       N       Y       Y       N       N       N       N       N       N

Channelized:     N
Grade:         0.00


Lane usage for movements 7,8&9 approach:
               Lane 1                 Lane 2                 Lane 3
       L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------
       N       N       N       N       N       N       N       N       N

Channelized:     N
Grade:         0.00


Lane usage for movements 10,11&12 approach:
               Lane 1                 Lane 2                 Lane 3
       L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------
       Y       N       Y       N       N       N       N       N       N

Channelized:     N
Grade:         0.00


Data for Computing Effect of Delay to Major Street Vehicles:
-------------------------------------------------------------------------------
```

```
                                             Northbound          Southbound
Shared ln volume, major th vehicles:            26                  0
Shared ln volume, major rt vehicles:             0                  0
Sat flow rate, major th vehicles:             1700               1700
Sat flow rate, major rt vehicles:             1700               1700
Number of major street through lanes:            1                  1


Length of study period, hrs:     0.25

----------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement            1      10      12
----------------------------------------------------------------------------------
t c,base          4.1     7.1     6.2
t  c,hv           1.0     1.0     1.0
P hv             0.00    0.00    0.00
t  c,g                    0.2     0.1
G                0.00    0.00    0.00
t  3,lt           0.0     0.7     0.0
t  c,T:
 1 stage         0.00    0.00    0.00

t c
 1 stage          4.1     6.4     6.2

Follow Up Time Calculations:
Movement            1      10      12
----------------------------------------------------------------------------------
t  f,base         2.2     3.5     3.3
t  f,HV           0.9     0.9     0.9
P hv             0.00    0.00    0.00
t f               2.2     3.5     3.3
----------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                           9            12
----------------------------------------------------------------------------------
Conflicting Flows                                                 9
Potential Capacity                                             1079
Pedestrian Impedance Factor                                    1.00
Movement Capacity                                              1079
Probability of Queue free St.                                  0.95
----------------------------------------------------------------------------------

Step 2: LT from Major St.                           4             1
----------------------------------------------------------------------------------
Conflicting Flows                                                10
Potential Capacity                                             1623
Pedestrian Impedance Factor                                    1.00
Movement Capacity                                              1623
Probability of Queue free St.                                  0.94
Maj. L Shared ln. Prob. Queue Free St.                         0.94
----------------------------------------------------------------------------------

Step 4: LT from Minor St.                           7            10
----------------------------------------------------------------------------------
Conflicting Flows                                               231
Potential Capacity                                              762
Pedestrian Impedance Factor                                    1.00
Maj. L, Min T Impedance factor                                 0.94
Maj. L, Min T Adj. Imp Factor.                                 0.95
Cap. Adj. factor due to Impeding mvmnt                         0.95
Movement Capacity                                               726
----------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                            7      8      9     10     11     12
----------------------------------------------------------------------------------
                                  |                || ------      ------|
                                  |                ||                   |
                                  |                ||                   |
v(vph)                                                   1             56
Movement Capacity                                      726           1079
Shared Lane Capacity                                  1070
----------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS
```

```
Movement                   1      4      7      8      9     10     11     12
-----------------------------------------------------------------------------------------------
                                      |                   ||------       ------|
                                      |                   ||                   |
                                      |                   ||                   |
v(vph)                    98                                 57
C m(vph)                1623                               1070
v/c                     0.06                               0.05
95% queue length
Control Delay            7.4                                8.6
LOS                        A                                  A
Approach Delay                                                     8.6
Approach LOS                                                         A
-----------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                   2      5
-----------------------------------------------------------------------------------------------
P oj                                    0.94   1.00
V i1                                      26      0
V i2                                       0      0
S i1                                    1700   1700
S i2                                    1700   1700
P* 0j                                   0.94   1.00
D maj left                               7.4    0.0
N number major st lanes                    1      1
Delay, rank 1 mvmts                      0.5    0.0
-----------------------------------------------------------------------------------------------
```

```
                   HCS: Unsignalized Intersections Release 3.1b

__________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS_________________________

Analyst: cbh
Intersection: I-15/JEAN SB OFF
Count Date: FUTURE + OPERATIONS
Time Period: AM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:         1      2      5      6      7      8      9
-----------------------------------------------------------------------------------------------
Volume:           45     47    118     78     67      2    126
HFR:              45     47    118     78     67      2    126
PHF:            1.00   1.00   1.00   1.00   1.00   1.00   1.00
PHV:            0.00   0.00   0.00   0.00   0.00   0.00   0.00
-----------------------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
-----------------------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:    None
# of vehicles:  0

Flared approach Movements:

# of vehicles: Eastbound       0
# of vehicles: Westbound       0


Lane usage for movements 1,2&3 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       Y       Y       N       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Lane usage for movements 4,5&6 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       N       Y       Y       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Lane usage for movements 7,8&9 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       Y       Y       N       N       N       Y       N       N       N

Channelized:      N
Grade:          0.00


Lane usage for movements 10,11&12 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       N       N       N       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Data for Computing Effect of Delay to Major Street Vehicles:
-----------------------------------------------------------------------------------------------
```

```
                                                Northbound              Southbound
Shared ln volume, major th vehicles:               47                      119
Shared ln volume, major rt vehicles:                0                        0
Sat flow rate, major th vehicles:                1700                     1700
Sat flow rate, major rt vehicles:                1700                     1700
Number of major street through lanes:               1                        1


Length of study period, hrs:      0.25

-------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement              1      7      8      9
-------------------------------------------------------------------------------
t c,base            4.1    7.1    6.5    6.2
t  c,hv             1.0    1.0    1.0    1.0
P hv               0.00   0.00   0.00   0.00
t  c,g                     0.2    0.2    0.1
G                  0.00   0.00   0.00   0.00
t  3,lt             0.0    0.7    0.0    0.0
t  c,T:
 1 stage           0.00   0.00   0.00   0.00

t c
 1 stage            4.1    6.4    6.5    6.2

Follow Up Time Calculations:
Movement              1      7      8      9
-------------------------------------------------------------------------------
t  f,base           2.2    3.5    4.0    3.3
t  f,HV             0.9    0.9    0.9    0.9
P hv               0.00   0.00   0.00   0.00
t f                 2.2    3.5    4.0    3.3
-------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                        9             12
-------------------------------------------------------------------------------
Conflicting Flows                               47
Potential Capacity                            1028
Pedestrian Impedance Factor                   1.00
Movement Capacity                             1028
Probability of Queue free St.                 0.88
-------------------------------------------------------------------------------

Step 2: LT from Major St.                        4              1
-------------------------------------------------------------------------------
Conflicting Flows                                             196
Potential Capacity                                           1389
Pedestrian Impedance Factor                                  1.00
Movement Capacity                                            1389
Probability of Queue free St.                                0.97
Maj. L Shared ln. Prob. Queue Free St.                       0.97
-------------------------------------------------------------------------------

Step 3: TH from Minor St.                        8             11
-------------------------------------------------------------------------------
Conflicting Flows                              333
Potential Capacity                             590
Pedestrian Impedance Factor                   1.00
Cap. Adj. factor due to Impeding mvmnt        0.97
Movement Capacity                              571
Probability of Queue free St.                 1.00
-------------------------------------------------------------------------------

Step 4: LT from Minor St.                        7             10
-------------------------------------------------------------------------------
Conflicting Flows                              294
Potential Capacity                             701
Pedestrian Impedance Factor                   1.00
Maj. L, Min T Impedance factor                0.97
Maj. L, Min T Adj. Imp Factor.                0.97
Cap. Adj. factor due to Impeding mvmnt        0.97
Movement Capacity                              683
-------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                                 7      8      9     10     11     12
```

```
-----------------------------------------------------------------------------------------------
                                      |-------------      ||                   |
                                      |             ------||                   |
                                      |                   ||                   |
v(vph)                                  67      2    126
Movement Capacity                      683    571   1028
Shared Lane Capacity                   679
-----------------------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS

Movement                   1      4      7      8      9     10     11     12
-----------------------------------------------------------------------------------------------
                                      |-------------      ||                   |
                                      |             ------||                   |
                                      |                   ||                   |
v(vph)                    45            69    126
C m(vph)                1389           679   1028
v/c                     0.03          0.10   0.12
95% queue length
Control Delay            7.7          10.9    9.0
LOS                        A             B      A
Approach Delay                                9.7
Approach LOS                                    A
-----------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                   2      5
-----------------------------------------------------------------------------------------------
P oj                                    0.97   1.00
V i1                                      47    119
V i2                                       0      0
S i1                                    1700   1700
S i2                                    1700   1700
P* 0j                                   0.97   1.00
D maj left                               7.7    0.0
N number major st lanes                    1      1
Delay, rank 1 mvmts                      0.3    0.0
-----------------------------------------------------------------------------------------------
```

```
                    HCS: Unsignalized Intersections Release 3.1b

__________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS__________________________

Analyst: cbh
Intersection: I-15/JEAN SB OFF
Count Date: FUTURE + OPERATIONS
Time Period: PM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:        1      2      5      6      7      8      9
-----------------------------------------------------------------------------------------------
Volume:          53    102    128     73     65      2    161
HFR:             53    102    128     73     65      2    161
PHF:           1.00   1.00   1.00   1.00   1.00   1.00   1.00
PHV:           0.00   0.00   0.00   0.00   0.00   0.00   0.00
-----------------------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
-----------------------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:    None
# of vehicles:  0

Flared approach Movements:

# of vehicles: Eastbound       0
# of vehicles: Westbound       0


Lane usage for movements 1,2&3 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       Y       Y       N       N       N       N       N       N       N

Channelized:      N
Grade:         0.00


Lane usage for movements 4,5&6 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       N       Y       Y       N       N       N       N       N       N

Channelized:      N
Grade:         0.00


Lane usage for movements 7,8&9 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       Y       Y       N       N       N       Y       N       N       N

Channelized:      N
Grade:         0.00


Lane usage for movements 10,11&12 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       N       N       N       N       N       N       N       N       N

Channelized:      N
Grade:         0.00


Data for Computing Effect of Delay to Major Street Vehicles:
-----------------------------------------------------------------------------------------------
```

```
                                                Northbound               Southbound
Shared ln volume, major th vehicles:               102                     119
Shared ln volume, major rt vehicles:                 0                       0
Sat flow rate, major th vehicles:                 1700                    1700
Sat flow rate, major rt vehicles:                 1700                    1700
Number of major street through lanes:                1                       1


Length of study period, hrs:      0.25

-------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement           1      7      8      9
-------------------------------------------------------------------------------
t c,base         4.1    7.1    6.5    6.2
t  c,hv          1.0    1.0    1.0    1.0
P hv            0.00   0.00   0.00   0.00
t  c,g                  0.2    0.2    0.1
G               0.00   0.00   0.00   0.00
t  3,lt          0.0    0.7    0.0    0.0
t  c,T:
 1 stage        0.00   0.00   0.00   0.00

t c
 1 stage         4.1    6.4    6.5    6.2

Follow Up Time Calculations:
Movement           1      7      8      9
-------------------------------------------------------------------------------
t  f,base        2.2    3.5    4.0    3.3
t  f,HV          0.9    0.9    0.9    0.9
P hv            0.00   0.00   0.00   0.00
t f              2.2    3.5    4.0    3.3
-------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                            9               12
-------------------------------------------------------------------------------
Conflicting Flows                                 102
Potential Capacity                                959
Pedestrian Impedance Factor                      1.00
Movement Capacity                                 959
Probability of Queue free St.                    0.83
-------------------------------------------------------------------------------

Step 2: LT from Major St.                            4                1
-------------------------------------------------------------------------------
Conflicting Flows                                                   201
Potential Capacity                                                 1383
Pedestrian Impedance Factor                                        1.00
Movement Capacity                                                  1383
Probability of Queue free St.                                      0.96
Maj. L Shared ln. Prob. Queue Free St.                             0.96
-------------------------------------------------------------------------------

Step 3: TH from Minor St.                            8               11
-------------------------------------------------------------------------------
Conflicting Flows                                 409
Potential Capacity                                535
Pedestrian Impedance Factor                      1.00
Cap. Adj. factor due to Impeding mvmnt           0.96
Movement Capacity                                 513
Probability of Queue free St.                    1.00
-------------------------------------------------------------------------------

Step 4: LT from Minor St.                            7               10
-------------------------------------------------------------------------------
Conflicting Flows                                 373
Potential Capacity                                632
Pedestrian Impedance Factor                      1.00
Maj. L, Min T Impedance factor                   0.96
Maj. L, Min T Adj. Imp Factor.                   0.97
Cap. Adj. factor due to Impeding mvmnt           0.97
Movement Capacity                                 613
-------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                                  7      8      9     10     11     12
```

```
-----------------------------------------------------------------------------------------------
                                      |-------------      ||                    |
                                      |             ------||                    |
                                      |                   ||                    |
v(vph)                                  65      2    161
Movement Capacity                      613    513    959
Shared Lane Capacity                   609
-----------------------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS

Movement                   1      4      7      8      9     10     11     12
-----------------------------------------------------------------------------------------------
                                      |-------------      ||                    |
                                      |             ------||                    |
                                      |                   ||                    |
v(vph)                    53            67    161
C m(vph)                1383           609    959
v/c                     0.04          0.11   0.17
95% queue length
Control Delay            7.7          11.6    9.5
LOS                        A             B      A
Approach Delay                                10.1
Approach LOS                                     B
-----------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                   2      5
-----------------------------------------------------------------------------------------------
P oj                                    0.96   1.00
V i1                                     102    119
V i2                                       0      0
S i1                                    1700   1700
S i2                                    1700   1700
P* 0j                                   0.96   1.00
D maj left                               7.7    0.0
N number major st lanes                    1      1
Delay, rank 1 mvmts                      0.3    0.0
-----------------------------------------------------------------------------------------------
```

```
                HCS: Unsignalized Intersections Release 3.1b

___________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS___________________________

Analyst: cbh
Intersection: I-15/JEAN NB OFF
Count Date: fUTURE + OPERATIONS
Time Period: AM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:         2      3      4      5     10     11     12
-----------------------------------------------------------------------------------------------
Volume:           78     93     69    116     14      1     30
HFR:              78     93     69    116     14      1     30
PHF:            1.00   1.00   1.00   1.00   1.00   1.00   1.00
PHV:            0.00   0.00   0.00   0.00   0.00   0.00   0.00
-----------------------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
-----------------------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:    None
# of vehicles:  0

Flared approach Movements:

# of vehicles: Eastbound      0
# of vehicles: Westbound      0


Lane usage for movements 1,2&3 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       N       Y       Y       N       N       N       N       N       N

Channelized:      N
Grade:         0.00


Lane usage for movements 4,5&6 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       Y       Y       N       N       N       N       N       N       N

Channelized:      N
Grade:         0.00


Lane usage for movements 7,8&9 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       N       N       N       N       N       N       N       N       N

Channelized:      N
Grade:         0.00


Lane usage for movements 10,11&12 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       Y       Y       N       N       N       Y       N       N       N

Channelized:      N
Grade:         0.00


Data for Computing Effect of Delay to Major Street Vehicles:
-----------------------------------------------------------------------------------------------
```

```
                                              Northbound             Southbound
Shared ln volume, major th vehicles:             0                     116
Shared ln volume, major rt vehicles:             0                       0
Sat flow rate, major th vehicles:              1700                   1700
Sat flow rate, major rt vehicles:              1700                   1700
Number of major street through lanes:            1                       1


Length of study period, hrs:     0.25

-------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement            4      10      11      12
-------------------------------------------------------------------------------
t c,base          4.1     7.1     6.5     6.2
t  c,hv           1.0     1.0     1.0     1.0
P hv             0.00    0.00    0.00    0.00
t  c,g                    0.2     0.2     0.1
G                0.00    0.00    0.00    0.00
t  3,lt           0.0     0.7     0.0     0.0
t  c,T:
 1 stage         0.00    0.00    0.00    0.00

t c
 1 stage          4.1     6.4     6.5     6.2

Follow Up Time Calculations:
Movement            4      10      11      12
-------------------------------------------------------------------------------
t  f,base         2.2     3.5     4.0     3.3
t  f,HV           0.9     0.9     0.9     0.9
P hv             0.00    0.00    0.00    0.00
t f               2.2     3.5     4.0     3.3
-------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                          9             12
-------------------------------------------------------------------------------
Conflicting Flows                                               116
Potential Capacity                                              942
Pedestrian Impedance Factor                                    1.00
Movement Capacity                                               942
Probability of Queue free St.                                  0.97
-------------------------------------------------------------------------------

Step 2: LT from Major St.                          4              1
-------------------------------------------------------------------------------
Conflicting Flows                                 171
Potential Capacity                               1418
Pedestrian Impedance Factor                      1.00
Movement Capacity                                1418
Probability of Queue free St.                    0.95
Maj. L Shared ln. Prob. Queue Free St.           0.95
-------------------------------------------------------------------------------

Step 3: TH from Minor St.                          8             11
-------------------------------------------------------------------------------
Conflicting Flows                                               425
Potential Capacity                                              524
Pedestrian Impedance Factor                                    1.00
Cap. Adj. factor due to Impeding mvmnt                         0.95
Movement Capacity                                               497
Probability of Queue free St.                                  1.00
-------------------------------------------------------------------------------

Step 4: LT from Minor St.                          7             10
-------------------------------------------------------------------------------
Conflicting Flows                                               379
Potential Capacity                                              627
Pedestrian Impedance Factor                                    1.00
Maj. L, Min T Impedance factor                                 0.95
Maj. L, Min T Adj. Imp Factor.                                 0.96
Cap. Adj. factor due to Impeding mvmnt                         0.96
Movement Capacity                                               602
-------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                               7      8      9     10     11     12
```

```
-----------------------------------------------------------------------------------------------
                                      |                   ||-------------      |
                                      |                   ||             ------|
                                      |                   ||                   |
v(vph)                                                       14      1     30
Movement Capacity                                           602    497    942
Shared Lane Capacity                                        594
-----------------------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS

Movement                   1      4      7      8      9     10     11     12
-----------------------------------------------------------------------------------------------
                                      |                   ||-------------      |
                                      |                   ||             ------|
                                      |                   ||                   |
v(vph)                           69                          15     30
C m(vph)                       1418                         594    942
v/c                            0.05                        0.03   0.03
95% queue length
Control Delay                   7.7                        11.2    8.9
LOS                               A                           B      A
Approach Delay                                                     9.7
Approach LOS                                                         A
-----------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                   2      5
-----------------------------------------------------------------------------------------------
P oj                                    1.00   0.95
V i1                                       0    116
V i2                                       0      0
S i1                                    1700   1700
S i2                                    1700   1700
P* 0j                                   1.00   0.95
D maj left                               0.0    7.7
N number major st lanes                    1      1
Delay, rank 1 mvmts                      0.0    0.4
-----------------------------------------------------------------------------------------------
```

```
              HCS: Unsignalized Intersections Release 3.1b

_________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS_________________________

Analyst: cbh
Intersection: I-15/JEAN NB OFF
Count Date: fUTURE + OPERATIONS
Time Period: PM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:        2      3      4      5     10     11     12
-----------------------------------------------------------------------------------------------
Volume:         118    105     77    119     38      2     85
HFR:            118    105     77    119     38      2     85
PHF:           1.00   1.00   1.00   1.00   1.00   1.00   1.00
PHV:           0.00   0.00   0.00   0.00   0.00   0.00   0.00
-----------------------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
-----------------------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:    None
# of vehicles:  0

Flared approach Movements:

# of vehicles: Eastbound      0
# of vehicles: Westbound      0


Lane usage for movements 1,2&3 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       N       Y       Y       N       N       N       N       N       N

Channelized:      N
Grade:         0.00


Lane usage for movements 4,5&6 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       Y       Y       N       N       N       N       N       N       N

Channelized:      N
Grade:         0.00


Lane usage for movements 7,8&9 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       N       N       N       N       N       N       N       N       N

Channelized:      N
Grade:         0.00


Lane usage for movements 10,11&12 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       Y       Y       N       N       N       Y       N       N       N

Channelized:      N
Grade:         0.00


Data for Computing Effect of Delay to Major Street Vehicles:
-----------------------------------------------------------------------------------------------
```

```
                                               Northbound              Southbound
Shared ln volume, major th vehicles:              0                       119
Shared ln volume, major rt vehicles:              0                        0
Sat flow rate, major th vehicles:               1700                     1700
Sat flow rate, major rt vehicles:               1700                     1700
Number of major street through lanes:             1                        1


Length of study period, hrs:      0.25

-------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement             4      10      11      12
-------------------------------------------------------------------------------
t c,base           4.1     7.1     6.5     6.2
t  c,hv            1.0     1.0     1.0     1.0
P hv              0.00    0.00    0.00    0.00
t  c,g                     0.2     0.2     0.1
G                 0.00    0.00    0.00    0.00
t  3,lt            0.0     0.7     0.0     0.0
t  c,T:
 1 stage          0.00    0.00    0.00    0.00

t c
 1 stage           4.1     6.4     6.5     6.2

Follow Up Time Calculations:
Movement             4      10      11      12
-------------------------------------------------------------------------------
t  f,base          2.2     3.5     4.0     3.3
t  f,HV            0.9     0.9     0.9     0.9
P hv              0.00    0.00    0.00    0.00
t f                2.2     3.5     4.0     3.3
-------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                            9             12
-------------------------------------------------------------------------------
Conflicting Flows                                                 119
Potential Capacity                                                938
Pedestrian Impedance Factor                                      1.00
Movement Capacity                                                 938
Probability of Queue free St.                                    0.91
-------------------------------------------------------------------------------

Step 2: LT from Major St.                            4              1
-------------------------------------------------------------------------------
Conflicting Flows                                  223
Potential Capacity                                1358
Pedestrian Impedance Factor                       1.00
Movement Capacity                                 1358
Probability of Queue free St.                     0.94
Maj. L Shared ln. Prob. Queue Free St.            0.94
-------------------------------------------------------------------------------

Step 3: TH from Minor St.                            8             11
-------------------------------------------------------------------------------
Conflicting Flows                                                 496
Potential Capacity                                                478
Pedestrian Impedance Factor                                      1.00
Cap. Adj. factor due to Impeding mvmnt                           0.94
Movement Capacity                                                 449
Probability of Queue free St.                                    1.00
-------------------------------------------------------------------------------

Step 4: LT from Minor St.                            7             10
-------------------------------------------------------------------------------
Conflicting Flows                                                 444
Potential Capacity                                                576
Pedestrian Impedance Factor                                      1.00
Maj. L, Min T Impedance factor                                   0.94
Maj. L, Min T Adj. Imp Factor.                                   0.95
Cap. Adj. factor due to Impeding mvmnt                           0.95
Movement Capacity                                                 549
-------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                              7      8      9     10     11     12
```

```
-----------------------------------------------------------------------------------------------
                                      |                   ||-------------      |
                                      |                   ||             ------|
                                      |                   ||                   |
v(vph)                                                       38      2     85
Movement Capacity                                           549    449    938
Shared Lane Capacity                                        543
-----------------------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS

Movement                   1      4      7      8      9     10     11     12
-----------------------------------------------------------------------------------------------
                                      |                   ||-------------      |
                                      |                   ||             ------|
                                      |                   ||                   |
v(vph)                            77                          40     85
C m(vph)                        1358                         543    938
v/c                             0.06                        0.07   0.09
95% queue length
Control Delay                    7.8                        12.2    9.2
LOS                                A                           B      A
Approach Delay                                                     10.2
Approach LOS                                                          B
-----------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                   2      5
-----------------------------------------------------------------------------------------------
P oj                                    1.00   0.94
V i1                                       0    119
V i2                                       0      0
S i1                                    1700   1700
S i2                                    1700   1700
P* 0j                                   1.00   0.94
D maj left                               0.0    7.8
N number major st lanes                    1      1
Delay, rank 1 mvmts                      0.0    0.5
-----------------------------------------------------------------------------------------------
```

```
                HCS: Unsignalized Intersections Release 3.1b

___________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS__________________________

Analyst: CBH
Intersection: GOOD SPRINGS/SANDY VALLEY
Count Date: FUTURE OPERATIONS 2022
Time Period: AM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:        1      2      5      6      10     12
-----------------------------------------------------------------------------------------------
Volume:          75     13     23      2       2    129
HFR:             75     13     23      2       2    129
PHF:           1.00   1.00   1.00   1.00   1.00   1.00
PHV:           0.00   0.00   0.00   0.00   0.00   0.00
-----------------------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
-----------------------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:     None
# of vehicles:  0

Flared approach Movements:

# of vehicles: Eastbound       0
# of vehicles: Westbound       0


Lane usage for movements 1,2&3 approach:
               Lane 1                   Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       Y       Y       N       N       N       N       N       N       N

Channelized:     N
Grade:         0.00


Lane usage for movements 4,5&6 approach:
               Lane 1                   Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       N       Y       Y       N       N       N       N       N       N

Channelized:     N
Grade:         0.00


Lane usage for movements 7,8&9 approach:
               Lane 1                   Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       N       N       N       N       N       N       N       N       N

Channelized:     N
Grade:         0.00


Lane usage for movements 10,11&12 approach:
               Lane 1                   Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       Y       N       Y       N       N       N       N       N       N

Channelized:     N
Grade:         0.00


Data for Computing Effect of Delay to Major Street Vehicles:
-----------------------------------------------------------------------------------------------
```

```
                                              Northbound              Southbound
Shared ln volume, major th vehicles:             13                       0
Shared ln volume, major rt vehicles:              0                       0
Sat flow rate, major th vehicles:              1700                    1700
Sat flow rate, major rt vehicles:              1700                    1700
Number of major street through lanes:             1                       1


Length of study period, hrs:     0.25

------------------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement            1      10      12
------------------------------------------------------------------------------------------
t c,base          4.1     7.1     6.2
t  c,hv           1.0     1.0     1.0
P hv             0.00    0.00    0.00
t  c,g                    0.2     0.1
G                0.00    0.00    0.00
t  3,lt           0.0     0.7     0.0
t  c,T:
 1 stage         0.00    0.00    0.00

t c
 1 stage          4.1     6.4     6.2

Follow Up Time Calculations:
Movement            1      10      12
------------------------------------------------------------------------------------------
t  f,base         2.2     3.5     3.3
t  f,HV           0.9     0.9     0.9
P hv             0.00    0.00    0.00
t f               2.2     3.5     3.3
------------------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                            9             12
------------------------------------------------------------------------------------------
Conflicting Flows                                                  24
Potential Capacity                                               1058
Pedestrian Impedance Factor                                      1.00
Movement Capacity                                                1058
Probability of Queue free St.                                    0.88
------------------------------------------------------------------------------------------

Step 2: LT from Major St.                            4              1
------------------------------------------------------------------------------------------
Conflicting Flows                                                  25
Potential Capacity                                               1603
Pedestrian Impedance Factor                                      1.00
Movement Capacity                                                1603
Probability of Queue free St.                                    0.95
Maj. L Shared ln. Prob. Queue Free St.                           0.95
------------------------------------------------------------------------------------------

Step 4: LT from Minor St.                            7             10
------------------------------------------------------------------------------------------
Conflicting Flows                                                 187
Potential Capacity                                                807
Pedestrian Impedance Factor                                      1.00
Maj. L, Min T Impedance factor                                   0.95
Maj. L, Min T Adj. Imp Factor.                                   0.96
Cap. Adj. factor due to Impeding mvmnt                           0.96
Movement Capacity                                                 778
------------------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                                  7      8      9     10     11     12
------------------------------------------------------------------------------------------
                                        |                   ||------      ------|
                                        |                   ||                  |
                                        |                   ||                  |
v(vph)                                                           2           129
Movement Capacity                                              778          1058
Shared Lane Capacity                                          1052
------------------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS
```

```
Movement                      1       4       7       8       9      10      11      12
-------------------------------------------------------------------------------------------------
                                          |                        ||------      ------|
                                          |                        ||                  |
                                          |                        ||                  |
v(vph)                       75                                      131
C m(vph)                   1603                                     1052
v/c                        0.05                                     0.12
95% queue length
Control Delay               7.4                                      8.9
LOS                           A                                        A
Approach Delay                                                               8.9
Approach LOS                                                                   A
-------------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                        2      5
-------------------------------------------------------------------------------------------------
P oj                                         0.95   1.00
V i1                                           13      0
V i2                                            0      0
S i1                                         1700   1700
S i2                                         1700   1700
P* 0j                                        0.95   1.00
D maj left                                    7.4    0.0
N number major st lanes                         1      1
Delay, rank 1 mvmts                           0.3    0.0
-------------------------------------------------------------------------------------------------
```

```
            HCS: Unsignalized Intersections Release 3.1b

__________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS_________________________

Analyst: CBH
Intersection: GOOD SPRINGS/SANDY VALLEY
Count Date: FUTURE OPERATIONS 2022
Time Period: PM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:        1      2      5      6      10     12
-------------------------------------------------------------------------------------------------
Volume:          175     47     13     6      2      77
HFR:             175     47     13     6      2      77
PHF:            1.00   1.00   1.00   1.00   1.00   1.00
PHV:            0.00   0.00   0.00   0.00   0.00   0.00
-------------------------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
-------------------------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:     None
# of vehicles:  0

Flared approach Movements:

# of vehicles: Eastbound      0
# of vehicles: Westbound      0


Lane usage for movements 1,2&3 approach:
                Lane 1                    Lane 2                    Lane 3
       L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------------------------
       Y       Y       N       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Lane usage for movements 4,5&6 approach:
                Lane 1                    Lane 2                    Lane 3
       L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------------------------
       N       Y       Y       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Lane usage for movements 7,8&9 approach:
                Lane 1                    Lane 2                    Lane 3
       L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------------------------
       N       N       N       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Lane usage for movements 10,11&12 approach:
                Lane 1                    Lane 2                    Lane 3
       L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------------------------
       Y       N       Y       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Data for Computing Effect of Delay to Major Street Vehicles:
-------------------------------------------------------------------------------------------------
```

```
                                                Northbound               Southbound
Shared ln volume, major th vehicles:               47                        0
Shared ln volume, major rt vehicles:                0                        0
Sat flow rate, major th vehicles:                1700                     1700
Sat flow rate, major rt vehicles:                1700                     1700
Number of major street through lanes:               1                        1


Length of study period, hrs:      0.25

-----------------------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement           1     10     12
-----------------------------------------------------------------------------------------------
t c,base         4.1    7.1    6.2
t  c,hv          1.0    1.0    1.0
P hv            0.00   0.00   0.00
t  c,g                  0.2    0.1
G               0.00   0.00   0.00
t  3,lt          0.0    0.7    0.0
t  c,T:
 1 stage        0.00   0.00   0.00

t c
 1 stage         4.1    6.4    6.2

Follow Up Time Calculations:
Movement           1     10     12
-----------------------------------------------------------------------------------------------
t  f,base        2.2    3.5    3.3
t  f,HV          0.9    0.9    0.9
P hv            0.00   0.00   0.00
t f              2.2    3.5    3.3
-----------------------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                           9               12
-----------------------------------------------------------------------------------------------
Conflicting Flows                                                   16
Potential Capacity                                                1069
Pedestrian Impedance Factor                                       1.00
Movement Capacity                                                 1069
Probability of Queue free St.                                     0.93
-----------------------------------------------------------------------------------------------

Step 2: LT from Major St.                           4                1
-----------------------------------------------------------------------------------------------
Conflicting Flows                                                   19
Potential Capacity                                                1611
Pedestrian Impedance Factor                                       1.00
Movement Capacity                                                 1611
Probability of Queue free St.                                     0.89
Maj. L Shared ln. Prob. Queue Free St.                            0.89
-----------------------------------------------------------------------------------------------

Step 4: LT from Minor St.                           7               10
-----------------------------------------------------------------------------------------------
Conflicting Flows                                                  413
Potential Capacity                                                 599
Pedestrian Impedance Factor                                       1.00
Maj. L, Min T Impedance factor                                    0.89
Maj. L, Min T Adj. Imp Factor.                                    0.91
Cap. Adj. factor due to Impeding mvmnt                            0.91
Movement Capacity                                                  548
-----------------------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                                 7      8      9     10     11     12
-----------------------------------------------------------------------------------------------
                                       |                   ||------       ------|
                                       |                   ||                   |
                                       |                   ||                   |
v(vph)                                                         2           77
Movement Capacity                                            548         1069
Shared Lane Capacity                                        1044
-----------------------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS
```

```
Movement                   1      4      7      8      9     10     11     12
------------------------------------------------------------------------------------------------
                                      |                   ||------       ------|
                                      |                   ||                   |
                                      |                   ||                   |
v(vph)                   175                                 79
C m(vph)                1611                               1044
v/c                     0.11                               0.08
95% queue length
Control Delay            7.5                                8.7
LOS                        A                                  A
Approach Delay                                                     8.7
Approach LOS                                                         A
------------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                   2      5
------------------------------------------------------------------------------------------------
P oj                                    0.89   1.00
V i1                                      47      0
V i2                                       0      0
S i1                                    1700   1700
S i2                                    1700   1700
P* 0j                                   0.89   1.00
D maj left                               7.5    0.0
N number major st lanes                    1      1
Delay, rank 1 mvmts                      0.8    0.0
------------------------------------------------------------------------------------------------
```

```
                HCS: Unsignalized Intersections Release 3.1b

___________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS__________________________

Analyst: cbh
Intersection: I-15/JEAN SB OFF
Count Date: FUTURE 2022
Time Period: AM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:        1      2      5      6      7      8      9
-----------------------------------------------------------------------------------------------
Volume:          80     79    210    139    120      4    206
HFR:             80     79    210    139    120      4    206
PHF:           1.00   1.00   1.00   1.00   1.00   1.00   1.00
PHV:           0.00   0.00   0.00   0.00   0.00   0.00   0.00
-----------------------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
-----------------------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:    None
# of vehicles:  0

Flared approach Movements:

# of vehicles: Eastbound      0
# of vehicles: Westbound      0


Lane usage for movements 1,2&3 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       Y       Y       N       N       N       N       N       N       N

Channelized:     N
Grade:          0.00


Lane usage for movements 4,5&6 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       N       Y       Y       N       N       N       N       N       N

Channelized:     N
Grade:          0.00


Lane usage for movements 7,8&9 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       Y       Y       N       N       N       Y       N       N       N

Channelized:     N
Grade:          0.00


Lane usage for movements 10,11&12 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       N       N       N       N       N       N       N       N       N

Channelized:     N
Grade:          0.00


Data for Computing Effect of Delay to Major Street Vehicles:
-----------------------------------------------------------------------------------------------
```

```
                                               Northbound               Southbound
Shared ln volume, major th vehicles:              79                      119
Shared ln volume, major rt vehicles:               0                        0
Sat flow rate, major th vehicles:                1700                   1700
Sat flow rate, major rt vehicles:                1700                   1700
Number of major street through lanes:              1                        1


Length of study period, hrs:     0.25

-----------------------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement           1      7      8      9
-----------------------------------------------------------------------------------------------
t c,base         4.1    7.1    6.5    6.2
t  c,hv          1.0    1.0    1.0    1.0
P hv            0.00   0.00   0.00   0.00
t  c,g                  0.2    0.2    0.1
G               0.00   0.00   0.00   0.00
t  3,lt          0.0    0.7    0.0    0.0
t  c,T:
 1 stage        0.00   0.00   0.00   0.00

t c
 1 stage         4.1    6.4    6.5    6.2

Follow Up Time Calculations:
Movement           1      7      8      9
-----------------------------------------------------------------------------------------------
t  f,base        2.2    3.5    4.0    3.3
t  f,HV          0.9    0.9    0.9    0.9
P hv            0.00   0.00   0.00   0.00
t f              2.2    3.5    4.0    3.3
-----------------------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                          9               12
-----------------------------------------------------------------------------------------------
Conflicting Flows                                 79
Potential Capacity                               987
Pedestrian Impedance Factor                     1.00
Movement Capacity                                987
Probability of Queue free St.                   0.79
-----------------------------------------------------------------------------------------------

Step 2: LT from Major St.                          4                1
-----------------------------------------------------------------------------------------------
Conflicting Flows                                                  349
Potential Capacity                                                1221
Pedestrian Impedance Factor                                       1.00
Movement Capacity                                                 1221
Probability of Queue free St.                                     0.93
Maj. L Shared ln. Prob. Queue Free St.                            0.93
-----------------------------------------------------------------------------------------------

Step 3: TH from Minor St.                          8               11
-----------------------------------------------------------------------------------------------
Conflicting Flows                                588
Potential Capacity                               424
Pedestrian Impedance Factor                     1.00
Cap. Adj. factor due to Impeding mvmnt          0.93
Movement Capacity                                395
Probability of Queue free St.                   0.99
-----------------------------------------------------------------------------------------------

Step 4: LT from Minor St.                          7               10
-----------------------------------------------------------------------------------------------
Conflicting Flows                                519
Potential Capacity                               521
Pedestrian Impedance Factor                     1.00
Maj. L, Min T Impedance factor                  0.93
Maj. L, Min T Adj. Imp Factor.                  0.95
Cap. Adj. factor due to Impeding mvmnt          0.95
Movement Capacity                                494
-----------------------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                                 7      8      9     10     11     12
```

```
-----------------------------------------------------------------------------------------------
                                      |-------------       ||                    |
                                      |             ------||                    |
                                      |                    ||                    |
v(vph)                                 120      4    206
Movement Capacity                      494    395    987
Shared Lane Capacity                   490
-----------------------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS

Movement                   1      4      7      8      9     10     11     12
-----------------------------------------------------------------------------------------------
                                      |-------------       ||                    |
                                      |             ------||                    |
                                      |                    ||                    |
v(vph)                    80           124    206
C m(vph)                1221           490    987
v/c                     0.07          0.25   0.21
95% queue length
Control Delay            8.2          14.8    9.6
LOS                        A             B      A
Approach Delay                               11.6
Approach LOS                                    B
-----------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                   2      5
-----------------------------------------------------------------------------------------------
P oj                                    0.93   1.00
V i1                                      79    119
V i2                                       0      0
S i1                                    1700   1700
S i2                                    1700   1700
P* 0j                                   0.93   1.00
D maj left                               8.2    0.0
N number major st lanes                    1      1
Delay, rank 1 mvmts                      0.6    0.0
-----------------------------------------------------------------------------------------------
```

```
                  HCS: Unsignalized Intersections Release 3.1b

_________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS_________________________

Analyst: cbh
Intersection: I-15/JEAN SB OFF
Count Date: FUTURE OPERATIONS 2022
Time Period: PM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:        1      2      5      6      7      8      9
---------------------------------------------------------------------------
Volume:          96    182    207    129    116      4    287
HFR:             96    182    207    129    116      4    287
PHF:           1.00   1.00   1.00   1.00   1.00   1.00   1.00
PHV:           0.00   0.00   0.00   0.00   0.00   0.00   0.00
---------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
---------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:    None
# of vehicles:  0

Flared approach Movements:

# of vehicles: Eastbound      0
# of vehicles: Westbound      0


Lane usage for movements 1,2&3 approach:
              Lane 1                 Lane 2                 Lane 3
       L      T      R      L      T      R      L      T      R
---------------------------------------------------------------------------
       Y      Y      N      N      N      N      N      N      N

Channelized:      N
Grade:          0.00


Lane usage for movements 4,5&6 approach:
              Lane 1                 Lane 2                 Lane 3
       L      T      R      L      T      R      L      T      R
---------------------------------------------------------------------------
       N      Y      Y      N      N      N      N      N      N

Channelized:      N
Grade:          0.00


Lane usage for movements 7,8&9 approach:
              Lane 1                 Lane 2                 Lane 3
       L      T      R      L      T      R      L      T      R
---------------------------------------------------------------------------
       Y      Y      N      N      N      Y      N      N      N

Channelized:      N
Grade:          0.00


Lane usage for movements 10,11&12 approach:
              Lane 1                 Lane 2                 Lane 3
       L      T      R      L      T      R      L      T      R
---------------------------------------------------------------------------
       N      N      N      N      N      N      N      N      N

Channelized:      N
Grade:          0.00


Data for Computing Effect of Delay to Major Street Vehicles:
---------------------------------------------------------------------------
```

```
                                                        Northbound                   Southbound
Shared ln volume, major th vehicles:                      182                          119
Shared ln volume, major rt vehicles:                       0                            0
Sat flow rate, major th vehicles:                        1700                         1700
Sat flow rate, major rt vehicles:                        1700                         1700
Number of major street through lanes:                      1                            1


Length of study period, hrs:      0.25

-------------------------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement            1       7       8       9
-------------------------------------------------------------------------------------------------
t c,base          4.1     7.1     6.5     6.2
t  c,hv           1.0     1.0     1.0     1.0
P hv             0.00    0.00    0.00    0.00
t  c,g                    0.2     0.2     0.1
G                0.00    0.00    0.00    0.00
t  3,lt           0.0     0.7     0.0     0.0
t  c,T:
 1 stage         0.00    0.00    0.00    0.00

t c
 1 stage          4.1     6.4     6.5     6.2

Follow Up Time Calculations:
Movement            1       7       8       9
-------------------------------------------------------------------------------------------------
t  f,base         2.2     3.5     4.0     3.3
t  f,HV           0.9     0.9     0.9     0.9
P hv             0.00    0.00    0.00    0.00
t f               2.2     3.5     4.0     3.3
-------------------------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                               9                12
-------------------------------------------------------------------------------------------------
Conflicting Flows                                     182
Potential Capacity                                    866
Pedestrian Impedance Factor                          1.00
Movement Capacity                                     866
Probability of Queue free St.                        0.67
-------------------------------------------------------------------------------------------------

Step 2: LT from Major St.                               4                 1
-------------------------------------------------------------------------------------------------
Conflicting Flows                                                       336
Potential Capacity                                                     1235
Pedestrian Impedance Factor                                            1.00
Movement Capacity                                                      1235
Probability of Queue free St.                                          0.92
Maj. L Shared ln. Prob. Queue Free St.                                 0.91
-------------------------------------------------------------------------------------------------

Step 3: TH from Minor St.                               8                11
-------------------------------------------------------------------------------------------------
Conflicting Flows                                     710
Potential Capacity                                    361
Pedestrian Impedance Factor                          1.00
Cap. Adj. factor due to Impeding mvmnt               0.91
Movement Capacity                                     330
Probability of Queue free St.                        0.99
-------------------------------------------------------------------------------------------------

Step 4: LT from Minor St.                               7                10
-------------------------------------------------------------------------------------------------
Conflicting Flows                                     646
Potential Capacity                                    440
Pedestrian Impedance Factor                          1.00
Maj. L, Min T Impedance factor                       0.91
Maj. L, Min T Adj. Imp Factor.                       0.93
Cap. Adj. factor due to Impeding mvmnt               0.93
Movement Capacity                                     410
-------------------------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                                 7       8       9      10      11      12
```

```
------------------------------------------------------------------------------------------------
                                       |-------------      ||                   |
                                       |             ------||                   |
                                       |                   ||                   |
v(vph)                                  116    4    287
Movement Capacity                       410  330    866
Shared Lane Capacity                    407
------------------------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS

Movement                    1      4      7      8      9      10     11     12
------------------------------------------------------------------------------------------------
                                       |-------------      ||                   |
                                       |             ------||                   |
                                       |                   ||                   |
v(vph)                     96           120    287
C m(vph)                 1235           407    866
v/c                      0.08          0.29   0.33
95% queue length
Control Delay             8.2          17.5   11.2
LOS                         A             C      B
Approach Delay                                13.1
Approach LOS                                     B
------------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                    2      5
------------------------------------------------------------------------------------------------
P oj                                     0.92   1.00
V i1                                      182    119
V i2                                        0      0
S i1                                     1700   1700
S i2                                     1700   1700
P* 0j                                    0.91   1.00
D maj left                                8.2    0.0
N number major st lanes                     1      1
Delay, rank 1 mvmts                       0.7    0.0
------------------------------------------------------------------------------------------------
```

```
                 HCS: Unsignalized Intersections Release 3.1b

__________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS__________________________

Analyst: cbh
Intersection: I-15/JEAN NB OFF
Count Date: fUTURE OPERATIONS 2022
Time Period: AM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:        2      3      4      5     10     11     12
-------------------------------------------------------------------------------
Volume:         138    167    124    206     22      2     54
HFR:            138    167    124    206     22      2     54
PHF:           1.00   1.00   1.00   1.00   1.00   1.00   1.00
PHV:           0.00   0.00   0.00   0.00   0.00   0.00   0.00
-------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
-------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:    None
# of vehicles:  0

Flared approach Movements:

# of vehicles: Eastbound       0
# of vehicles: Westbound       0


Lane usage for movements 1,2&3 approach:
              Lane 1                 Lane 2                 Lane 3
       L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------
       N       Y       Y       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Lane usage for movements 4,5&6 approach:
              Lane 1                 Lane 2                 Lane 3
       L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------
       Y       Y       N       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Lane usage for movements 7,8&9 approach:
              Lane 1                 Lane 2                 Lane 3
       L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------
       N       N       N       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Lane usage for movements 10,11&12 approach:
              Lane 1                 Lane 2                 Lane 3
       L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------
       Y       Y       N       N       N       Y       N       N       N

Channelized:      N
Grade:          0.00



Data for Computing Effect of Delay to Major Street Vehicles:
-------------------------------------------------------------------------------
```

```
                                              Northbound           Southbound
Shared ln volume, major th vehicles:              0                   206
Shared ln volume, major rt vehicles:              0                    0
Sat flow rate, major th vehicles:               1700                 1700
Sat flow rate, major rt vehicles:               1700                 1700
Number of major street through lanes:             1                    1


Length of study period, hrs:      0.25

_______________________________________________________________________________

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement              4      10      11      12
_______________________________________________________________________________
t c,base            4.1     7.1     6.5     6.2
t  c,hv             1.0     1.0     1.0     1.0
P hv               0.00    0.00    0.00    0.00
t  c,g                      0.2     0.2     0.1
G                  0.00    0.00    0.00    0.00
t  3,lt             0.0     0.7     0.0     0.0
t  c,T:
 1 stage           0.00    0.00    0.00    0.00

t c
 1 stage            4.1     6.4     6.5     6.2

Follow Up Time Calculations:
Movement              4      10      11      12
_______________________________________________________________________________
t  f,base           2.2     3.5     4.0     3.3
t  f,HV             0.9     0.9     0.9     0.9
P hv               0.00    0.00    0.00    0.00
t f                 2.2     3.5     4.0     3.3
_______________________________________________________________________________

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                         9              12
_______________________________________________________________________________
Conflicting Flows                                               206
Potential Capacity                                              840
Pedestrian Impedance Factor                                    1.00
Movement Capacity                                               840
Probability of Queue free St.                                  0.94
_______________________________________________________________________________

Step 2: LT from Major St.                         4               1
_______________________________________________________________________________
Conflicting Flows                               305
Potential Capacity                             1267
Pedestrian Impedance Factor                    1.00
Movement Capacity                              1267
Probability of Queue free St.                  0.90
Maj. L Shared ln. Prob. Queue Free St.         0.89
_______________________________________________________________________________

Step 3: TH from Minor St.                         8              11
_______________________________________________________________________________
Conflicting Flows                                               759
Potential Capacity                                              338
Pedestrian Impedance Factor                                    1.00
Cap. Adj. factor due to Impeding mvmnt                         0.89
Movement Capacity                                               301
Probability of Queue free St.                                  0.99
_______________________________________________________________________________

Step 4: LT from Minor St.                         7              10
_______________________________________________________________________________
Conflicting Flows                                               676
Potential Capacity                                              422
Pedestrian Impedance Factor                                    1.00
Maj. L, Min T Impedance factor                                 0.89
Maj. L, Min T Adj. Imp Factor.                                 0.91
Cap. Adj. factor due to Impeding mvmnt                         0.91
Movement Capacity                                               386
_______________________________________________________________________________


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                                 7      8      9     10     11     12
```

```
-----------------------------------------------------------------------------------------------
                                      |                   ||-------------      |
                                      |                   ||             ------|
                                      |                   ||                   |
v(vph)                                                       22      2     54
Movement Capacity                                           386    301    840
Shared Lane Capacity                                        377
-----------------------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS

Movement                   1      4      7      8      9     10     11     12
-----------------------------------------------------------------------------------------------
                                      |                   ||-------------      |
                                      |                   ||             ------|
                                      |                   ||                   |
v(vph)                          124                          24     54
C m(vph)                       1267                         377    840
v/c                            0.10                        0.06   0.06
95% queue length
Control Delay                   8.1                        15.2    9.6
LOS                               A                           C      A
Approach Delay                                                    11.3
Approach LOS                                                         B
-----------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                   2      5
-----------------------------------------------------------------------------------------------
P oj                                    1.00   0.90
V i1                                       0    206
V i2                                       0      0
S i1                                    1700   1700
S i2                                    1700   1700
P* 0j                                   1.00   0.89
D maj left                               0.0    8.1
N number major st lanes                    1      1
Delay, rank 1 mvmts                      0.0    0.9
-----------------------------------------------------------------------------------------------
```

```
                     HCS: Unsignalized Intersections Release 3.1b

_____________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS__________________________

Analyst: cbh
Intersection: I-15/JEAN NB OFF
Count Date: fUTURE OPERATIONS 2022
Time Period: PM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:        2      3      4      5      10     11     12
-----------------------------------------------------------------------------------------------
Volume:          210    188    117    210     68      4    152
HFR:             210    188    117    210     68      4    152
PHF:            1.00   1.00   1.00   1.00   1.00   1.00   1.00
PHV:            0.00   0.00   0.00   0.00   0.00   0.00   0.00
-----------------------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
-----------------------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:     None
# of vehicles:   0

Flared approach Movements:

# of vehicles: Eastbound        0
# of vehicles: Westbound        0


Lane usage for movements 1,2&3 approach:
              Lane 1                      Lane 2                      Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       N       Y       Y       N       N       N       N       N       N

Channelized:       N
Grade:          0.00


Lane usage for movements 4,5&6 approach:
              Lane 1                      Lane 2                      Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       Y       Y       N       N       N       N       N       N       N

Channelized:       N
Grade:          0.00


Lane usage for movements 7,8&9 approach:
              Lane 1                      Lane 2                      Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       N       N       N       N       N       N       N       N       N

Channelized:       N
Grade:          0.00


Lane usage for movements 10,11&12 approach:
              Lane 1                      Lane 2                      Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       Y       Y       N       N       N       Y       N       N       N

Channelized:       N
Grade:          0.00


Data for Computing Effect of Delay to Major Street Vehicles:
-----------------------------------------------------------------------------------------------
```

```
                                             Northbound            Southbound
Shared ln volume, major th vehicles:             0                    210
Shared ln volume, major rt vehicles:             0                     0
Sat flow rate, major th vehicles:              1700                  1700
Sat flow rate, major rt vehicles:              1700                  1700
Number of major street through lanes:            1                     1


Length of study period, hrs:      0.25

-------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement               4       10      11      12
-------------------------------------------------------------------------------
t c,base             4.1     7.1     6.5     6.2
t  c,hv              1.0     1.0     1.0     1.0
P hv                0.00    0.00    0.00    0.00
t  c,g                       0.2     0.2     0.1
G                   0.00    0.00    0.00    0.00
t  3,lt              0.0     0.7     0.0     0.0
t  c,T:
 1 stage            0.00    0.00    0.00    0.00

t c
 1 stage             4.1     6.4     6.5     6.2

Follow Up Time Calculations:
Movement               4       10      11      12
-------------------------------------------------------------------------------
t  f,base            2.2     3.5     4.0     3.3
t  f,HV              0.9     0.9     0.9     0.9
P hv                0.00    0.00    0.00    0.00
t f                  2.2     3.5     4.0     3.3
-------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                           9             12
-------------------------------------------------------------------------------
Conflicting Flows                                                210
Potential Capacity                                               835
Pedestrian Impedance Factor                                     1.00
Movement Capacity                                                835
Probability of Queue free St.                                   0.82
-------------------------------------------------------------------------------

Step 2: LT from Major St.                           4              1
-------------------------------------------------------------------------------
Conflicting Flows                                 398
Potential Capacity                               1172
Pedestrian Impedance Factor                      1.00
Movement Capacity                                1172
Probability of Queue free St.                    0.90
Maj. L Shared ln. Prob. Queue Free St.           0.89
-------------------------------------------------------------------------------

Step 3: TH from Minor St.                           8             11
-------------------------------------------------------------------------------
Conflicting Flows                                                842
Potential Capacity                                               303
Pedestrian Impedance Factor                                     1.00
Cap. Adj. factor due to Impeding mvmnt                          0.89
Movement Capacity                                                268
Probability of Queue free St.                                   0.99
-------------------------------------------------------------------------------

Step 4: LT from Minor St.                           7             10
-------------------------------------------------------------------------------
Conflicting Flows                                                748
Potential Capacity                                               383
Pedestrian Impedance Factor                                     1.00
Maj. L, Min T Impedance factor                                  0.89
Maj. L, Min T Adj. Imp Factor.                                  0.91
Cap. Adj. factor due to Impeding mvmnt                          0.91
Movement Capacity                                                349
-------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                                   7      8      9      10      11      12
```

```
-----------------------------------------------------------------------------------------------
                                       |                   ||-------------      |
                                       |                   ||             ------|
                                       |                   ||                   |
v(vph)                                                        68      4    152
Movement Capacity                                            349    268    835
Shared Lane Capacity                                         344
-----------------------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS

Movement                   1      4      7      8      9     10     11     12
-----------------------------------------------------------------------------------------------
                                       |                   ||-------------      |
                                       |                   ||             ------|
                                       |                   ||                   |
v(vph)                          117                          72    152
C m(vph)                       1172                         344    835
v/c                            0.10                        0.21   0.18
95% queue length
Control Delay                   8.4                        18.2   10.3
LOS                               A                           C      B
Approach Delay                                                    12.8
Approach LOS                                                         B
-----------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                   2      5
-----------------------------------------------------------------------------------------------
P oj                                    1.00   0.90
V i1                                       0    210
V i2                                       0      0
S i1                                    1700   1700
S i2                                    1700   1700
P* 0j                                   1.00   0.89
D maj left                               0.0    8.4
N number major st lanes                    1      1
Delay, rank 1 mvmts                      0.0    1.0
-----------------------------------------------------------------------------------------------
```

Attachment E

Level of Service—Existing Plus Construction

```
                HCS: Unsignalized Intersections Release 3.1b

__________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS__________________________

Analyst: CBH
Intersection: GOOD SPRINGS/SANDY VALLEY
Count Date: EXISTING + CONSTRUCTION
Time Period: AM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:         1      2      5      6     10     12
--------------------------------------------------------------------------------------------
Volume:           96      7     12      1      1     71
HFR:              96      7     12      1      1     71
PHF:            1.00   1.00   1.00   1.00   1.00   1.00
PHV:            0.00   0.00   0.00   0.00   0.00   0.00
--------------------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
--------------------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:    None
# of vehicles:  0

Flared approach Movements:

# of vehicles: Eastbound       0
# of vehicles: Westbound       0


Lane usage for movements 1,2&3 approach:
              Lane 1                   Lane 2                   Lane 3
       L       T       R       L       T       R       L       T       R
--------------------------------------------------------------------------------------------
       Y       Y       N       N       N       N       N       N       N

Channelized:      N
Grade:         0.00


Lane usage for movements 4,5&6 approach:
              Lane 1                   Lane 2                   Lane 3
       L       T       R       L       T       R       L       T       R
--------------------------------------------------------------------------------------------
       N       Y       Y       N       N       N       N       N       N

Channelized:      N
Grade:         0.00


Lane usage for movements 7,8&9 approach:
              Lane 1                   Lane 2                   Lane 3
       L       T       R       L       T       R       L       T       R
--------------------------------------------------------------------------------------------
       N       N       N       N       N       N       N       N       N

Channelized:      N
Grade:         0.00


Lane usage for movements 10,11&12 approach:
              Lane 1                   Lane 2                   Lane 3
       L       T       R       L       T       R       L       T       R
--------------------------------------------------------------------------------------------
       Y       N       Y       N       N       N       N       N       N

Channelized:      N
Grade:         0.00


Data for Computing Effect of Delay to Major Street Vehicles:
--------------------------------------------------------------------------------------------
```

```
                                              Northbound              Southbound
Shared ln volume, major th vehicles:              7                       0
Shared ln volume, major rt vehicles:              0                       0
Sat flow rate, major th vehicles:               1700                    1700
Sat flow rate, major rt vehicles:               1700                    1700
Number of major street through lanes:             1                       1


Length of study period, hrs:       0.25

-------------------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement               1      10      12
-------------------------------------------------------------------------------------------
t c,base             4.1     7.1     6.2
t  c,hv              1.0     1.0     1.0
P hv                0.00    0.00    0.00
t  c,g                       0.2     0.1
G                   0.00    0.00    0.00
t  3,lt              0.0     0.7     0.0
t  c,T:
 1 stage            0.00    0.00    0.00

t c
 1 stage             4.1     6.4     6.2

Follow Up Time Calculations:
Movement               1      10      12
-------------------------------------------------------------------------------------------
t  f,base            2.2     3.5     3.3
t  f,HV              0.9     0.9     0.9
P hv                0.00    0.00    0.00
t f                  2.2     3.5     3.3
-------------------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                              9              12
-------------------------------------------------------------------------------------------
Conflicting Flows                                                     13
Potential Capacity                                                  1074
Pedestrian Impedance Factor                                         1.00
Movement Capacity                                                   1074
Probability of Queue free St.                                       0.93
-------------------------------------------------------------------------------------------

Step 2: LT from Major St.                              4               1
-------------------------------------------------------------------------------------------
Conflicting Flows                                                     13
Potential Capacity                                                  1619
Pedestrian Impedance Factor                                         1.00
Movement Capacity                                                   1619
Probability of Queue free St.                                       0.94
Maj. L Shared ln. Prob. Queue Free St.                              0.94
-------------------------------------------------------------------------------------------

Step 4: LT from Minor St.                              7              10
-------------------------------------------------------------------------------------------
Conflicting Flows                                                    212
Potential Capacity                                                   781
Pedestrian Impedance Factor                                         1.00
Maj. L, Min T Impedance factor                                      0.94
Maj. L, Min T Adj. Imp Factor.                                      0.95
Cap. Adj. factor due to Impeding mvmnt                              0.95
Movement Capacity                                                    746
-------------------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                                  7      8      9     10     11     12
-------------------------------------------------------------------------------------------
                                        |                 ||------       ------|
                                        |                 ||                   |
                                        |                 ||                   |
v(vph)                                                           1            71
Movement Capacity                                              746          1074
Shared Lane Capacity                                          1067
-------------------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS
```

```
Movement                   1      4      7      8      9     10     11     12
----------------------------------------------------------------------------------------------
                                      |                   ||------       ------|
                                      |                   ||                   |
                                      |                   ||                   |
v(vph)                    96                                 72
C m(vph)                1619                               1067
v/c                     0.06                               0.07
95% queue length
Control Delay            7.4                                8.6
LOS                        A                                  A
Approach Delay                                                     8.6
Approach LOS                                                         A
----------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                   2      5
----------------------------------------------------------------------------------------------
P oj                                    0.94   1.00
V i1                                       7      0
V i2                                       0      0
S i1                                    1700   1700
S i2                                    1700   1700
P* 0j                                   0.94   1.00
D maj left                               7.4    0.0
N number major st lanes                    1      1
Delay, rank 1 mvmts                      0.4    0.0
----------------------------------------------------------------------------------------------
```

```
                HCS: Unsignalized Intersections Release 3.1b

__________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS__________________________

Analyst: CBH
Intersection: GOOD SPRINGS/SANDY VALLEY
Count Date: EXISTING + CONSTRUCTION
Time Period: PM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:        1      2      5      6     10     12
-----------------------------------------------------------------------------------------------
Volume:          95     25      7      3      1     97
HFR:             95     25      7      3      1     97
PHF:           1.00   1.00   1.00   1.00   1.00   1.00
PHV:           0.00   0.00   0.00   0.00   0.00   0.00
-----------------------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
-----------------------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:    None
# of vehicles:  0

Flared approach Movements:

# of vehicles: Eastbound      0
# of vehicles: Westbound      0


Lane usage for movements 1,2&3 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       Y       Y       N       N       N       N       N       N       N

Channelized:      N
Grade:         0.00


Lane usage for movements 4,5&6 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       N       Y       Y       N       N       N       N       N       N

Channelized:      N
Grade:         0.00


Lane usage for movements 7,8&9 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       N       N       N       N       N       N       N       N       N

Channelized:      N
Grade:         0.00


Lane usage for movements 10,11&12 approach:
              Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       Y       N       Y       N       N       N       N       N       N

Channelized:      N
Grade:         0.00


Data for Computing Effect of Delay to Major Street Vehicles:
-----------------------------------------------------------------------------------------------
```

```
                                              Northbound              Southbound
Shared ln volume, major th vehicles:             25                       0
Shared ln volume, major rt vehicles:              0                       0
Sat flow rate, major th vehicles:               1700                    1700
Sat flow rate, major rt vehicles:               1700                    1700
Number of major street through lanes:             1                       1


Length of study period, hrs:      0.25

--------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement            1      10      12
--------------------------------------------------------------------------------
t c,base           4.1    7.1     6.2
t  c,hv            1.0    1.0     1.0
P hv              0.00   0.00    0.00
t  c,g                    0.2     0.1
G                 0.00   0.00    0.00
t  3,lt            0.0    0.7     0.0
t  c,T:
 1 stage          0.00   0.00    0.00

t c
 1 stage           4.1    6.4     6.2

Follow Up Time Calculations:
Movement            1      10      12
--------------------------------------------------------------------------------
t  f,base          2.2    3.5     3.3
t  f,HV            0.9    0.9     0.9
P hv              0.00   0.00    0.00
t f                2.2    3.5     3.3
--------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                       9             12
--------------------------------------------------------------------------------
Conflicting Flows                                              9
Potential Capacity                                          1079
Pedestrian Impedance Factor                                 1.00
Movement Capacity                                           1079
Probability of Queue free St.                               0.91
--------------------------------------------------------------------------------

Step 2: LT from Major St.                       4              1
--------------------------------------------------------------------------------
Conflicting Flows                                             10
Potential Capacity                                          1623
Pedestrian Impedance Factor                                 1.00
Movement Capacity                                           1623
Probability of Queue free St.                               0.94
Maj. L Shared ln. Prob. Queue Free St.                      0.94
--------------------------------------------------------------------------------

Step 4: LT from Minor St.                       7             10
--------------------------------------------------------------------------------
Conflicting Flows                                            224
Potential Capacity                                           769
Pedestrian Impedance Factor                                 1.00
Maj. L, Min T Impedance factor                              0.94
Maj. L, Min T Adj. Imp Factor.                              0.95
Cap. Adj. factor due to Impeding mvmnt                      0.95
Movement Capacity                                            734
--------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                               7      8      9     10      11      12
--------------------------------------------------------------------------------
                                      |                  ||------      ------|
                                      |                  ||                  |
                                      |                  ||                  |
v(vph)                                                      1              97
Movement Capacity                                         734            1079
Shared Lane Capacity                                     1074
--------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS
```

```
Movement                       1      4      7      8      9     10     11     12
-----------------------------------------------------------------------------------------
                                          |                   ||------          ------|
                                          |                   ||                      |
                                          |                   ||                      |
v(vph)                        95                                 98
C m(vph)                    1623                               1074
v/c                         0.06                               0.09
95% queue length
Control Delay                7.4                                8.7
LOS                            A                                  A
Approach Delay                                                          8.7
Approach LOS                                                              A
-----------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                        2      5
-----------------------------------------------------------------------------------------
P oj                                         0.94   1.00
V i1                                           25      0
V i2                                            0      0
S i1                                         1700   1700
S i2                                         1700   1700
P* 0j                                        0.94   1.00
D maj left                                    7.4    0.0
N number major st lanes                         1      1
Delay, rank 1 mvmts                           0.4    0.0
-----------------------------------------------------------------------------------------
```

```
               HCS: Unsignalized Intersections Release 3.1b

______________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS______________________________

Analyst: cbh
Intersection: I-15/JEAN SB OFF
Count Date: EXISTING + CONSTRUCTION
Time Period: AM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:       1       2       5       6       7       8       9
-----------------------------------------------------------------------------------------------
Volume:         43      53     114      74      64       2     155
HFR:            43      53     114      74      64       2     155
PHF:          1.00    1.00    1.00    1.00    1.00    1.00    1.00
PHV:          0.00    0.00    0.00    0.00    0.00    0.00    0.00
-----------------------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
-----------------------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:    None
# of vehicles:  0

Flared approach Movements:

# of vehicles: Eastbound       0
# of vehicles: Westbound       0


Lane usage for movements 1,2&3 approach:
                Lane 1                    Lane 2                   Lane 3
       L        T        R        L        T        R        L        T        R
-----------------------------------------------------------------------------------------------
       Y        Y        N        N        N        N        N        N        N

Channelized:      N
Grade:          0.00


Lane usage for movements 4,5&6 approach:
                Lane 1                    Lane 2                   Lane 3
       L        T        R        L        T        R        L        T        R
-----------------------------------------------------------------------------------------------
       N        Y        Y        N        N        N        N        N        N

Channelized:      N
Grade:          0.00


Lane usage for movements 7,8&9 approach:
                Lane 1                    Lane 2                   Lane 3
       L        T        R        L        T        R        L        T        R
-----------------------------------------------------------------------------------------------
       Y        Y        N        N        N        Y        N        N        N

Channelized:      N
Grade:          0.00


Lane usage for movements 10,11&12 approach:
                Lane 1                    Lane 2                   Lane 3
       L        T        R        L        T        R        L        T        R
-----------------------------------------------------------------------------------------------
       N        N        N        N        N        N        N        N        N

Channelized:      N
Grade:          0.00


Data for Computing Effect of Delay to Major Street Vehicles:
-----------------------------------------------------------------------------------------------
```

```
                                                Northbound                Southbound
Shared ln volume, major th vehicles:                53                       119
Shared ln volume, major rt vehicles:                 0                         0
Sat flow rate, major th vehicles:                 1700                      1700
Sat flow rate, major rt vehicles:                 1700                      1700
Number of major street through lanes:                1                         1


Length of study period, hrs:      0.25

-----------------------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement             1      7      8      9
-----------------------------------------------------------------------------------------------
t c,base           4.1    7.1    6.5    6.2
t  c,hv            1.0    1.0    1.0    1.0
P hv              0.00   0.00   0.00   0.00
t  c,g                    0.2    0.2    0.1
G                 0.00   0.00   0.00   0.00
t  3,lt            0.0    0.7    0.0    0.0
t  c,T:
 1 stage          0.00   0.00   0.00   0.00

t c
 1 stage           4.1    6.4    6.5    6.2

Follow Up Time Calculations:
Movement             1      7      8      9
-----------------------------------------------------------------------------------------------
t  f,base          2.2    3.5    4.0    3.3
t  f,HV            0.9    0.9    0.9    0.9
P hv              0.00   0.00   0.00   0.00
t f                2.2    3.5    4.0    3.3
-----------------------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                          9               12
-----------------------------------------------------------------------------------------------
Conflicting Flows                                 53
Potential Capacity                              1020
Pedestrian Impedance Factor                     1.00
Movement Capacity                               1020
Probability of Queue free St.                   0.85
-----------------------------------------------------------------------------------------------

Step 2: LT from Major St.                          4                1
-----------------------------------------------------------------------------------------------
Conflicting Flows                                                 188
Potential Capacity                                               1398
Pedestrian Impedance Factor                                      1.00
Movement Capacity                                                1398
Probability of Queue free St.                                    0.97
Maj. L Shared ln. Prob. Queue Free St.                           0.97
-----------------------------------------------------------------------------------------------

Step 3: TH from Minor St.                          8               11
-----------------------------------------------------------------------------------------------
Conflicting Flows                                327
Potential Capacity                               595
Pedestrian Impedance Factor                     1.00
Cap. Adj. factor due to Impeding mvmnt          0.97
Movement Capacity                                576
Probability of Queue free St.                   1.00
-----------------------------------------------------------------------------------------------

Step 4: LT from Minor St.                          7               10
-----------------------------------------------------------------------------------------------
Conflicting Flows                                290
Potential Capacity                               705
Pedestrian Impedance Factor                     1.00
Maj. L, Min T Impedance factor                  0.97
Maj. L, Min T Adj. Imp Factor.                  0.98
Cap. Adj. factor due to Impeding mvmnt          0.98
Movement Capacity                                688
-----------------------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                                 7      8      9     10     11     12
```

```
----------------------------------------------------------------------------------------------
                                      |-------------      ||                   |
                                      |             ------||                   |
                                      |                   ||                   |
v(vph)                                  64      2    155
Movement Capacity                      688    576   1020
Shared Lane Capacity                   684
----------------------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS

Movement                   1      4      7      8      9     10     11     12
----------------------------------------------------------------------------------------------
                                      |-------------      ||                   |
                                      |             ------||                   |
                                      |                   ||                   |
v(vph)                    43            66    155
C m(vph)                1398           684   1020
v/c                     0.03          0.10   0.15
95% queue length
Control Delay            7.7          10.8    9.2
LOS                        A             B      A
Approach Delay                                9.7
Approach LOS                                    A
----------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                   2      5
----------------------------------------------------------------------------------------------
P oj                                    0.97   1.00
V i1                                      53    119
V i2                                       0      0
S i1                                    1700   1700
S i2                                    1700   1700
P* 0j                                   0.97   1.00
D maj left                               7.7    0.0
N number major st lanes                    1      1
Delay, rank 1 mvmts                      0.2    0.0
----------------------------------------------------------------------------------------------
```

```
                    HCS: Unsignalized Intersections Release 3.1b

______________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS___________________________

Analyst: cbh
Intersection: I-15/JEAN SB OFF
Count Date: EXISTING + CONSTRUCTION
Time Period: PM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:         1       2       5       6       7       8       9
----------------------------------------------------------------------------------------------------
Volume:           51      97     161      74      62       2     155
HFR:              51      97     161      74      62       2     155
PHF:            1.00    1.00    1.00    1.00    1.00    1.00    1.00
PHV:            0.00    0.00    0.00    0.00    0.00    0.00    0.00
----------------------------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
----------------------------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:     None
# of vehicles:  0

Flared approach Movements:

# of vehicles: Eastbound       0
# of vehicles: Westbound       0


Lane usage for movements 1,2&3 approach:
               Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
----------------------------------------------------------------------------------------------------
       Y       Y       N       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Lane usage for movements 4,5&6 approach:
               Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
----------------------------------------------------------------------------------------------------
       N       Y       Y       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Lane usage for movements 7,8&9 approach:
               Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
----------------------------------------------------------------------------------------------------
       Y       Y       N       N       N       Y       N       N       N

Channelized:      N
Grade:          0.00


Lane usage for movements 10,11&12 approach:
               Lane 1                  Lane 2                  Lane 3
       L       T       R       L       T       R       L       T       R
----------------------------------------------------------------------------------------------------
       N       N       N       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Data for Computing Effect of Delay to Major Street Vehicles:
----------------------------------------------------------------------------------------------------
```

```
                                               Northbound              Southbound
Shared ln volume, major th vehicles:              97                      119
Shared ln volume, major rt vehicles:               0                        0
Sat flow rate, major th vehicles:               1700                     1700
Sat flow rate, major rt vehicles:               1700                     1700
Number of major street through lanes:              1                        1


Length of study period, hrs:      0.25

_______________________________________________________________________________________

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement            1      7      8      9
_______________________________________________________________________________________
t c,base          4.1    7.1    6.5    6.2
t  c,hv           1.0    1.0    1.0    1.0
P hv             0.00   0.00   0.00   0.00
t  c,g                   0.2    0.2    0.1
G                0.00   0.00   0.00   0.00
t  3,lt           0.0    0.7    0.0    0.0
t  c,T:
 1 stage         0.00   0.00   0.00   0.00

t c
 1 stage          4.1    6.4    6.5    6.2

Follow Up Time Calculations:
Movement            1      7      8      9
_______________________________________________________________________________________
t  f,base         2.2    3.5    4.0    3.3
t  f,HV           0.9    0.9    0.9    0.9
P hv             0.00   0.00   0.00   0.00
t f               2.2    3.5    4.0    3.3
_______________________________________________________________________________________

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                        9                 12
_______________________________________________________________________________________
Conflicting Flows                               97
Potential Capacity                             965
Pedestrian Impedance Factor                   1.00
Movement Capacity                              965
Probability of Queue free St.                 0.84
_______________________________________________________________________________________

Step 2: LT from Major St.                        4                  1
_______________________________________________________________________________________
Conflicting Flows                                                 235
Potential Capacity                                               1344
Pedestrian Impedance Factor                                      1.00
Movement Capacity                                                1344
Probability of Queue free St.                                    0.96
Maj. L Shared ln. Prob. Queue Free St.                           0.96
_______________________________________________________________________________________

Step 3: TH from Minor St.                        8                 11
_______________________________________________________________________________________
Conflicting Flows                              434
Potential Capacity                             518
Pedestrian Impedance Factor                   1.00
Cap. Adj. factor due to Impeding mvmnt        0.96
Movement Capacity                              497
Probability of Queue free St.                 1.00
_______________________________________________________________________________________

Step 4: LT from Minor St.                        7                 10
_______________________________________________________________________________________
Conflicting Flows                              397
Potential Capacity                             612
Pedestrian Impedance Factor                   1.00
Maj. L, Min T Impedance factor                0.96
Maj. L, Min T Adj. Imp Factor.                0.97
Cap. Adj. factor due to Impeding mvmnt        0.97
Movement Capacity                              593
_______________________________________________________________________________________


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                              7      8      9     10     11     12
```

```
-----------------------------------------------------------------------------------------------
                                      |-------------      ||                    |
                                      |             ------||                    |
                                      |                   ||                    |
v(vph)                                  62      2    155
Movement Capacity                      593    497    965
Shared Lane Capacity                   590
-----------------------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS

Movement                   1      4      7      8      9     10     11     12
-----------------------------------------------------------------------------------------------
                                      |-------------      ||                    |
                                      |             ------||                    |
                                      |                   ||                    |
v(vph)                    51            64    155
C m(vph)                1344           590    965
v/c                     0.04          0.11   0.16
95% queue length
Control Delay            7.8          11.8    9.4
LOS                        A             B      A
Approach Delay                               10.1
Approach LOS                                    B
-----------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                   2      5
-----------------------------------------------------------------------------------------------
P oj                                    0.96   1.00
V i1                                      97    119
V i2                                       0      0
S i1                                    1700   1700
S i2                                    1700   1700
P* 0j                                   0.96   1.00
D maj left                               7.8    0.0
N number major st lanes                    1      1
Delay, rank 1 mvmts                      0.3    0.0
-----------------------------------------------------------------------------------------------
```

```
                    HCS: Unsignalized Intersections Release 3.1b

___________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS__________________________

Analyst: cbh
Intersection: I-15/JEAN NB OFF
Count Date: EXISTING + CONSTRUCTION
Time Period: AM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:        2      3      4      5      10     11     12
-----------------------------------------------------------------------------------------------
Volume:          79     89     68    110     17      1     29
HFR:             79     89     68    110     17      1     29
PHF:           1.00   1.00   1.00   1.00   1.00   1.00   1.00
PHV:           0.00   0.00   0.00   0.00   0.00   0.00   0.00
-----------------------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
-----------------------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:    None
# of vehicles:  0

Flared approach Movements:

# of vehicles: Eastbound      0
# of vehicles: Westbound      0


Lane usage for movements 1,2&3 approach:
              Lane 1                      Lane 2                      Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       N       Y       Y       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Lane usage for movements 4,5&6 approach:
              Lane 1                      Lane 2                      Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       Y       Y       N       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Lane usage for movements 7,8&9 approach:
              Lane 1                      Lane 2                      Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       N       N       N       N       N       N       N       N       N

Channelized:      N
Grade:          0.00


Lane usage for movements 10,11&12 approach:
              Lane 1                      Lane 2                      Lane 3
       L       T       R       L       T       R       L       T       R
-----------------------------------------------------------------------------------------------
       Y       Y       N       N       N       Y       N       N       N

Channelized:      N
Grade:          0.00


Data for Computing Effect of Delay to Major Street Vehicles:
-----------------------------------------------------------------------------------------------
```

```
                                                Northbound               Southbound
Shared ln volume, major th vehicles:                 0                     110
Shared ln volume, major rt vehicles:                 0                       0
Sat flow rate, major th vehicles:                 1700                    1700
Sat flow rate, major rt vehicles:                 1700                    1700
Number of major street through lanes:                1                       1


Length of study period, hrs:      0.25

-----------------------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement            4      10      11      12
-----------------------------------------------------------------------------------------------
t c,base          4.1     7.1     6.5     6.2
t  c,hv           1.0     1.0     1.0     1.0
P hv             0.00    0.00    0.00    0.00
t  c,g                    0.2     0.2     0.1
G                0.00    0.00    0.00    0.00
t  3,lt           0.0     0.7     0.0     0.0
t  c,T:
 1 stage         0.00    0.00    0.00    0.00

t c
 1 stage          4.1     6.4     6.5     6.2

Follow Up Time Calculations:
Movement            4      10      11      12
-----------------------------------------------------------------------------------------------
t  f,base         2.2     3.5     4.0     3.3
t  f,HV           0.9     0.9     0.9     0.9
P hv             0.00    0.00    0.00    0.00
t f               2.2     3.5     4.0     3.3
-----------------------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                            9               12
-----------------------------------------------------------------------------------------------
Conflicting Flows                                                   110
Potential Capacity                                                  949
Pedestrian Impedance Factor                                        1.00
Movement Capacity                                                   949
Probability of Queue free St.                                      0.97
-----------------------------------------------------------------------------------------------

Step 2: LT from Major St.                            4                1
-----------------------------------------------------------------------------------------------
Conflicting Flows                                  168
Potential Capacity                                1422
Pedestrian Impedance Factor                       1.00
Movement Capacity                                 1422
Probability of Queue free St.                     0.95
Maj. L Shared ln. Prob. Queue Free St.            0.95
-----------------------------------------------------------------------------------------------

Step 3: TH from Minor St.                            8               11
-----------------------------------------------------------------------------------------------
Conflicting Flows                                                   414
Potential Capacity                                                  532
Pedestrian Impedance Factor                                        1.00
Cap. Adj. factor due to Impeding mvmnt                             0.95
Movement Capacity                                                   505
Probability of Queue free St.                                      1.00
-----------------------------------------------------------------------------------------------

Step 4: LT from Minor St.                            7               10
-----------------------------------------------------------------------------------------------
Conflicting Flows                                                   370
Potential Capacity                                                  635
Pedestrian Impedance Factor                                        1.00
Maj. L, Min T Impedance factor                                     0.95
Maj. L, Min T Adj. Imp Factor.                                     0.96
Cap. Adj. factor due to Impeding mvmnt                             0.96
Movement Capacity                                                   610
-----------------------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                                  7      8      9     10     11     12
```

```
-----------------------------------------------------------------------------------------------
                                      |                   ||-------------      |
                                      |                   ||             ------|
                                      |                   ||                   |
v(vph)                                                       17      1     29
Movement Capacity                                           610    505    949
Shared Lane Capacity                                        603
-----------------------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS

Movement                   1      4      7      8      9     10     11     12
-----------------------------------------------------------------------------------------------
                                      |                   ||-------------      |
                                      |                   ||             ------|
                                      |                   ||                   |
v(vph)                           68                          18     29
C m(vph)                       1422                         603    949
v/c                            0.05                        0.03   0.03
95% queue length
Control Delay                   7.7                        11.2    8.9
LOS                               A                           B      A
Approach Delay                                                     9.8
Approach LOS                                                         A
-----------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                    2      5
-----------------------------------------------------------------------------------------------
P oj                                     1.00   0.95
V i1                                        0    110
V i2                                        0      0
S i1                                     1700   1700
S i2                                     1700   1700
P* 0j                                    1.00   0.95
D maj left                                0.0    7.7
N number major st lanes                     1      1
Delay, rank 1 mvmts                       0.0    0.4
-----------------------------------------------------------------------------------------------
```

```
                  HCS: Unsignalized Intersections Release 3.1b

__________________TWO-WAY STOP CONTROL(TWSC) ANALYSIS_________________________

Analyst: cbh
Intersection: I-15/JEAN NB OFF
Count Date: EXISTING + CONSTRUCTION
Time Period: PM

Intersection Orientation: North-South Major St.

Vehicle Volume Data:

Movements:        2      3      4      5      10     11     12
-------------------------------------------------------------------------------------------
Volume:          112    100    106    117     36      2     81
HFR:             112    100    106    117     36      2     81
PHF:            1.00   1.00   1.00   1.00   1.00   1.00   1.00
PHV:            0.00   0.00   0.00   0.00   0.00   0.00   0.00
-------------------------------------------------------------------------------------------


Pedestrian Volume Data:


Movements:
-------------------------------------------------------------------------------------------
Flow:
Lane width:
Walk speed:
% Blockage:

Median Type:    None
# of vehicles:  0

Flared approach Movements:

# of vehicles: Eastbound      0
# of vehicles: Westbound      0


Lane usage for movements 1,2&3 approach:
             Lane 1                    Lane 2                    Lane 3
      L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------------------
      N       Y       Y       N       N       N       N       N       N

Channelized:     N
Grade:         0.00


Lane usage for movements 4,5&6 approach:
             Lane 1                    Lane 2                    Lane 3
      L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------------------
      Y       Y       N       N       N       N       N       N       N

Channelized:     N
Grade:         0.00


Lane usage for movements 7,8&9 approach:
             Lane 1                    Lane 2                    Lane 3
      L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------------------
      N       N       N       N       N       N       N       N       N

Channelized:     N
Grade:         0.00


Lane usage for movements 10,11&12 approach:
             Lane 1                    Lane 2                    Lane 3
      L       T       R       L       T       R       L       T       R
-------------------------------------------------------------------------------------------
      Y       Y       N       N       N       Y       N       N       N

Channelized:     N
Grade:         0.00


Data for Computing Effect of Delay to Major Street Vehicles:
-------------------------------------------------------------------------------------------
```

```
                                               Northbound                Southbound
Shared ln volume, major th vehicles:               0                        117
Shared ln volume, major rt vehicles:               0                         0
Sat flow rate, major th vehicles:                1700                      1700
Sat flow rate, major rt vehicles:                1700                      1700
Number of major street through lanes:              1                         1


Length of study period, hrs:      0.25

-----------------------------------------------------------------------------------------

Worksheet 4  Critical Gap and Follow-up time calculation.

Critical Gap Calculations:
Movement              4      10      11      12
-----------------------------------------------------------------------------------------
t c,base             4.1     7.1     6.5     6.2
t  c,hv              1.0     1.0     1.0     1.0
P hv                0.00    0.00    0.00    0.00
t  c,g                       0.2     0.2     0.1
G                   0.00    0.00    0.00    0.00
t  3,lt              0.0     0.7     0.0     0.0
t  c,T:
 1 stage            0.00    0.00    0.00    0.00

t c
 1 stage             4.1     6.4     6.5     6.2

Follow Up Time Calculations:
Movement              4      10      11      12
-----------------------------------------------------------------------------------------
t  f,base            2.2     3.5     4.0     3.3
t  f,HV              0.9     0.9     0.9     0.9
P hv                0.00    0.00    0.00    0.00
t f                  2.2     3.5     4.0     3.3
-----------------------------------------------------------------------------------------

Worksheet 6 Impedance and capacity equations

Step 1: RT from Minor St.                          9              12
-----------------------------------------------------------------------------------------
Conflicting Flows                                                117
Potential Capacity                                               941
Pedestrian Impedance Factor                                     1.00
Movement Capacity                                                941
Probability of Queue free St.                                   0.91
-----------------------------------------------------------------------------------------

Step 2: LT from Major St.                          4               1
-----------------------------------------------------------------------------------------
Conflicting Flows                                212
Potential Capacity                              1370
Pedestrian Impedance Factor                     1.00
Movement Capacity                               1370
Probability of Queue free St.                   0.92
Maj. L Shared ln. Prob. Queue Free St.          0.92
-----------------------------------------------------------------------------------------

Step 3: TH from Minor St.                          8              11
-----------------------------------------------------------------------------------------
Conflicting Flows                                                541
Potential Capacity                                               451
Pedestrian Impedance Factor                                     1.00
Cap. Adj. factor due to Impeding mvmnt                          0.92
Movement Capacity                                                413
Probability of Queue free St.                                   1.00
-----------------------------------------------------------------------------------------

Step 4: LT from Minor St.                          7              10
-----------------------------------------------------------------------------------------
Conflicting Flows                                                491
Potential Capacity                                               540
Pedestrian Impedance Factor                                     1.00
Maj. L, Min T Impedance factor                                  0.92
Maj. L, Min T Adj. Imp Factor.                                  0.94
Cap. Adj. factor due to Impeding mvmnt                          0.94
Movement Capacity                                                506
-----------------------------------------------------------------------------------------


Worksheet 8 Shared Lane Calculations

Shared Lane Calculations
Movement                                  7      8      9     10     11     12
```

```
----------------------------------------------------------------------------------------------------
                                         |                    ||-------------       |
                                         |                    ||              ------|
                                         |                    ||                    |
v(vph)                                                           36      2      81
Movement Capacity                                               506    413     941
Shared Lane Capacity                                            500
----------------------------------------------------------------------------------------------------

Worksheet 10 delay,queue length, and LOS

Movement                     1      4       7      8       9     10     11      12
----------------------------------------------------------------------------------------------------
                                         |                    ||-------------       |
                                         |                    ||              ------|
                                         |                    ||                    |
v(vph)                            106                            38     81
C m(vph)                         1370                           500    941
v/c                              0.08                          0.08   0.09
95% queue length
Control Delay                     7.8                          12.8    9.2
LOS                                 A                             B      A
Approach Delay                                                        10.3
Approach LOS                                                             B
----------------------------------------------------------------------------------------------------


Worksheet 11  Shared Major LT Impedance and Delay

Rank 1 Delay Calculations
Movement                                      2      5
----------------------------------------------------------------------------------------------------
P oj                                       1.00   0.92
V i1                                          0    117
V i2                                          0      0
S i1                                       1700   1700
S i2                                       1700   1700
P* 0j                                      1.00   0.92
D maj left                                  0.0    7.8
N number major st lanes                       1      1
Delay, rank 1 mvmts                         0.0    0.7
----------------------------------------------------------------------------------------------------
```

Appendix G

Hazardous Material

PHASE I ENVIRONMENTAL SITE ASSESSMENT
TABLE MOUNTAIN WIND POWER PROJECT
GOODSPRINGS, NEVADA

PREPARED FOR:
Mr. Gary L. Galbraith
Post, Buckley, Schuh and Jernigan, Inc.
901 North Green Valley Parkway
Henderson, Nevada 89014

PREPARED BY:
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May 4, 2001
Project No. 300793001

TABLE OF CONTENTS

Page

1. INTRODUCTION 1
    1.1. Purpose 1
    1.2. Limiting Conditions and Methodology 1
2. SITE DESCRIPTION 1
    2.1. Site Location 1
    2.2. Site Characteristics 1
3. PHYSICAL SETTING 2
    3.1. Topography 2
    3.2. Geology 2
    3.3. Hydrology 3
4. SITE AND VICINITY HISTORY 3
    4.1. Aerial Photographs 3
    4.2. Sanborn Fire Insurance Maps 4
5. REGULATORY RECORDS REVIEW 4
    5.1. Environmental Database Search 4
6. SITE RECONNAISSANCE AND INFORMATION 6
    6.1. Hazardous Substances 6
    6.2. Polychlorinated Biphenyls (PCBs) 6
    6.3. Solid Waste Disposal 7
    6.4. Pits, Sumps, and Drywells 7
    6.5. On-Site UST 7
7. CONCLUSIONS AND RECOMMENDATIONS 7
8. LIMITATIONS AND EXCEPTIONS OF THE ASSESSMENT 7
    8.1. Nevada Certified Environmental Manager 8
9. REFERENCES AND AGENCY CONTACTS 9

Figures

Figure 1 – Site Location Map
Figure 2 – Site Plan

Appendices

Appendix A – Environmental Database Report
Appendix B – Photographic Documentation

1. INTRODUCTION

Ninyo & Moore has been authorized by Post, Buckley, Schuh & Jernigan, Inc. (PBS&J) to perform a Phase I Environmental Site Assessment (ESA) for the proposed Table Mountain Wind Power Project near Goodsprings, Nevada. The proposed wind power development area encompasses approximately 4,500 acres of public lands. The approximate location of the site is shown on Figure 1. This Phase I ESA has been performed in general conformance with the scope and limitations of ASTM E 1527-00.

1.1. Purpose

The purpose of this Phase I ESA was to identify recognized environmental conditions that may be present due to past or present land use of the site, and/or properties in the site vicinity.

1.2. Limiting Conditions and Methodology

The scope of this evaluation did not include subsurface exploration, soil or water sampling, chemical analysis, or an evaluation of radon, or lead. The scope of this evaluation did not include an evaluation of geotechnical conditions and/or hazards. Properties surrounding the site were visually inspected from public right-of-ways. Our observations were made from readily accessible vantage points. Although a reasonable effort was made to view relevant site features, some features may have been concealed.

2. SITE DESCRIPTION

This section provides a description of structures and other improvements on the site and adjoining properties. This section also includes a description of current uses of the site and adjoining properties.

2.1. Site Location

The Table Mountain area is located in the southern part of Nevada approximately 7 miles west of Jean near Goodsprings, Nevada. The area is accessible by Interstate Highway 15, State Highway 161, and a Clark County road that passes through Sandy Valley. Existing dirt roads throughout the area provide access to microwave towers, radio towers, weather station, transmission lines, and numerous mining claims.

2.2. Site Characteristics

The subject property is currently owned by the Bureau of Land Management (BLM) and is approximately 4,500 acres. As shown on Figure 2, the subject site is approximately 10 miles long north to south. The subject site is approximately 5 miles wide traversed east to west across Shenandoah Peak. The subject site may be generally described as vacant, undevel-

oped high desert. The legal description of the public land proposed to be available for wind power development is as follows:

T. 24 S, R. 57 E Mount Diablo Meridian, Nevada	
Sec. 13, E½.	
T. 24 S, R. 58 E Mount Diablo Meridian, Nevada	
Sec. 5, S½, S½NW¼, S½NE¼	Sec. 30, All
Sec. 6, S½, NE¼, S½NW¼	Sec. 31, N½, N½SW¼, N½SE¼
Sec. 7, All	Sec. 32, N½, SE ¼, N½SW¼, SE¼SW¼
Sec. 8, All	Sec. 33, All
Sec. 18, All	Sec. 34, SW¼NW¼, NW¼SW¼, S½SW¼
Sec. 19, All	Sec. 35, S½SW¼
Sec. 29, W½SW¼	
T. 25 S., R. 58 E Mount Diablo Meridian, Nevada	
Sec. 2, NW¼	Sec. 10, All
Sec. 3, All	Sec. 15, All
Sec. 4, All	Sec. 16, NE¼, E½SE¼
Sec. 5, E½NE¼, E½SE¼	Sec. 22, N½, SE¼, E½SW¼
Sec. 9, N½, SE¼	

Additional details concerning the site and surrounding properties are available on Figure 2.

3. PHYSICAL SETTING

The following sections describe the topography, geologic, and hydrologic characteristics of the site vicinity.

3.1. Topography

The local topography of the site is generally mountainous with steep slopes. The site has a surface elevation of approximately 5,000 to 5,800 feet above mean sea level according to the United States Geologic Survey (USGS), Goodsprings Quadrangle, Cottonwood Pass Quadrangle, Potosi Quadrangle, and Shenandoah Peak Quadrangle, 7.5-Minute Series Topographic Maps.

3.2. Geology

The subject site is located in the southern part of the Spring Mountains in southern Nevada which is in the southwestern part of the Great Basin, within the Basin and Range physiographic province. The southern Spring Mountains area marks the southeastern most extent of the Cordilleran miogeosyncline.

The southern Spring Mountains, separating the Mesquite Valley to the west and the Ivanpah Valley to the east, contains more than 10,000 feet of Paleozoic carbonate rocks which thin to about 2,000 feet in the Clark Mountains south of the Spring Mountains. Small exposures of Tertiary volcanic rocks are found in the southern Spring Mountains. Mesquite Valley Quaternary and Tertiary basin-fill deposits are as much as 10,000 feet thick and overlie

Paleozoic carbonate rocks. In Ivanpah Valley, basin fill is generally several thousand feet thick and overlies primarily carbonate rocks.

The sedimentary rocks range in age from Upper Cambrian to Recent. The Paleozoic rocks are dominantly carbonates while the Mesozoic units are continental clastics. Tertiary rocks include gravels and minor volcanic tuffs. There are two varieties of intrusive rocks including granite porphyry which forms large sill-like masses and small dikes of basaltic composition. In the southern Spring Mountains, three separate episodes of thrust faulting are recognized that greatly thickened the carbonate-rock section in this area. The thrust faults are part of a belt of thrust faulted rocks that stretches from southern Canada to southern California. Deformation within this belt began in the Jurassic and continued until Cretaceous time.

3.3. Hydrology

Mesquite and Ivanpah Valleys receive virtually all of their recharge from the southern Spring Mountains. Discharge from the area is generally by evapotranspiration or subsurface outflow. Some minor quantities of groundwater may be lost to irrigation. The growing tourist industry will lead to an estimated increase in groundwater pumping that will be currently twice the estimated recharge to the Ivanpah Valley.

Water levels within the carbonate rocks beneath Mesquite and Ivanpah Valleys are unknown in most areas as only a few wells penetrate the thick basin-fill cover in these areas. Basin-fill water levels in Mesquite Valley are generally less than 100 feet below land surface and decrease to less than 30 feet near the playa. In Ivanpah Valley, basin-fill water levels are generally greater than 100 feet below land surface and may deepen to more than 500 feet. The inferred direction of groundwater flow is northward toward Las Vegas Valley from Ivanpah Valley. In Mesquite Valley, the shallow flow within the basin fill is toward the playa in the southeastern part of the valley.

4. SITE AND VICINITY HISTORY

This section describes the historical land use of the subject site and adjoining properties compiled from several resources.

4.1. Aerial Photographs

Due to the limited coverage in the vicinity of the subject property, aerial photographs from readily available sources were limited to those for the year 1974. These photographs were very small scale and were used to compare topographic features and conditions observed during the site visit with those apparent in 1974.

1974 Aerial Photograph

The subject site appeared vacant and undeveloped. State Route 161 was evident east of Table Mountain. The community of Goodsprings was visible northeast of Table Mountain. The Sandy Valley road was evident north of Table Mountain. Dirt access roads to a number of mining locations appeared to be consistent with the relative locations and configurations of those observed during the site visit.

4.2. Sanborn Fire Insurance Maps

The Sanborn Company maintained insurance maps for various cities from 1867 through the 1950s. These maps often list site uses and features which are not ordinarily available from other sources. According to EDR-Sanborn, Inc., Sanborn maps are not available for the subject site.

5. REGULATORY RECORDS REVIEW

The following sections include the results and a discussion of the computerized search of state and federal standard environmental record sources.

5.1. Environmental Database Search

An *Environmental FirstSearch™* report, a commercially produced database product, was prepared specifically for the subject property on April 4, 2001. A copy of the database search report is included as Appendix A. The *Environmental FirstSearch™* study included a review of federal, state, and regional databases. A description of the assumptions and approach to the database search, lists of specific databases that were searched, and search results are provided within the report. Refer to the figures in the *Environmental FirstSearch™* report for the approximate locations of facilities identified by *Environmental FirstSearch™* as being of possible environmental concern. The search included queries to the following databases for cases within the specified search distance of the subject site.

United States Environmental Protection Agency (EPA), National Priorities List (NPL)

The NPL list, updated January 11, 2001, is an EPA listing of confirmed or proposed hazardous waste sites that have been targeted for possible long-term remedial action under the *Superfund Act*. Neither the subject site nor facilities within a 1-mile radius of the site were listed.

United States EPA, CERCLIS List

The CERCLIS list, updated December 28, 2000, is an EPA list of sites that are either proposed to or on the National Priorities List (NPL) and sites that are in the screening and assessment phase for possible inclusion on the NPL. Facilities identified by the EPA, which may have the potential for releasing hazardous substances into the environment, are listed in the CERCLIS list. No facilities were listed within a 1/2-mile radius of the site.

United States EPA, Resource Conservation and Recovery Act (RCRA), TSD List

This list, updated June 22, 2000, identifies EPA-listed facilities, which report storage, treatment, and/or disposal of hazardous waste (TSD facility), under the EPA's RCRA program. No facilities were listed within a 1/2-mile radius of the site.

United States EPA, Resource Conservation and Recovery Act (RCRA), Corrective Actions (CORRACTS) List

This list, updated June 22, 2000, identifies EPA-listed facilities that have reported a release of hazardous waste or constituents into the environment, and are undergoing "corrective action." Corrective action may be required beyond the facility's boundary

and can be required regardless of when the release occurred. No facilities were listed within a 1-mile radius of the site.

United States EPA, RCRA Generator

This list, dated June 22, 2000, identified EPA-listed facilities, which report generation of reportable quantities of hazardous waste under the RCRA program for the identification and tracking of hazardous waste. No facilities were listed within a 1/8-mile radius of the site.

Emergency Response Notification System (ERNS) List

Region 9 of EPA publishes an annual listing of reported CERCLA hazardous substance releases or spills in quantities greater than the reportable quantity, as maintained at the National Response Center. As of January 6, 2000, the subject site is not on the ERNS List.

Toxic Release Inventory (Title III SARA) List, (TRIS)

The Emergency Planning and Community Right-to-Know Act was enacted as Title III of Superfund Amendment Reauthorization Act (SARA) in October 1986. This act requires owners and operators of facilities to notify their local emergency planning committee and state emergency response commission of any release beyond the facility's boundary of any reportable quantity of any extremely hazardous substance. As of July 16, 1998, no sites were listed that are located within 1/4–mile radius of the subject site.

Nevada Department of Conservation and Natural Resources, Corrective Action Case List

The State CERCLIS Equivalent List (SCL), dated January 2, 2001, identifies Nevada hazardous waste facilities targeted for cleanup by responsible parties, the Department, and the Federal EPA over the next 5 years. SCL records are the states' equivalent to CERCLIS. No facilities were listed within a 1/2-mile radius of the site.

Nevada Department of Conservation and Natural Resources, Landfill List

The Nevada Department of Conservation and Natural Resources maintains lists of facilities including active solid waste disposal sites, inactive or closed solid waste disposal sites, and transfer facilities. The agency release date for this list is August 23, 2000. No facilities were listed within a 1/2-mile radius of the site.

Nevada Department of Conservation and Natural Resources, UST and AST Registration List

This list, updated April 5, 2000, identifies facilities containing registered USTs and ASTs. As of the April 2000 list, there was no facility located at the subject site and one facility located at the adjoining property. The facility is described below.

Nevada Department of Conservation and Natural Resources, Leaking Underground Storage Tank (LUST) List

The Leaking Underground Storage Tank (LUST) Information Systems is maintained by the Nevada Department of Conservation and Natural Resources. The agency release date for the LUST list is January 2, 2001. As of the January 2001, list, no facilities were listed within a 1/2-mile radius of the site.

6. SITE RECONNAISSANCE AND INFORMATION

On April 24 and 25, 2001, Mr. David Phillips of Ninyo & Moore conducted a site reconnaissance of the subject site. The reconnaissance involved a driving and walking tour and visual observations of the site and adjoining properties. The site occupies a total of approximately 4,500 acres and is located west of Goodsprings, Nevada. The site is characterized by generally north-south trending uplands. Elevation changes and variations in topographic relief are considerable within the site area. The uplands are steeply sloped on both the east and west sides. Site access from the main roads (Sandy Valley Road and Kingston Road) was by narrow, rocky jeep trails that extended up the steep slopes from the main roads.

We found the site generally vacant and undeveloped. The site was covered with sparse to thick desert vegetation. A large number of abandoned mine shafts and tailings piles were encountered throughout the site. Two radio tower/microwave compounds were located on the northeastern (approximately 1 mile northeast of Wilson Pass) and south-central (Table Mountain) areas of the site. The Valley Electric overhead power line traverses the northern part of the site (near Wilson Pass) in a northwest to southeasterly direction. Site photographs are included in Appendix B.

6.1. Hazardous Substances

During our site reconnaissance, we did not observe any dumped chemical containers, hydrocarbon-stained soil, standing water, or unusual odors. There was no visible evidence of prior agricultural or landscaping activity in the site. We have no reason to believe significant use of pesticides or herbicides has occurred on site. There were numerous waste rock piles from abandoned mines scattered throughout the site. Depending on the type of ore mined, these waste piles may contain limited concentrations of naturally occurring metals that may not be an environmental concern.

6.2. Polychlorinated Biphenyls (PCBs)

No pole- or pad-mounted transformers were observed within the boundaries of the subject site.

6.3. Solid Waste Disposal

Although no solid waste is produced on site, pockets of debris were observed that appeared to originate from mining activity. Solid waste observed at the subject property included construction waste, vehicle parts, and domestic debris; however, not to the extent of being an environmental concern.

6.4. Pits, Sumps, and Drywells

No evidence of pits, sumps, or drywells was observed at the subject site during the reconnaissance.

6.5. On-Site UST

No evidence of on-site USTs was observed at the subject site. Two radio tower/microwave sites were located on the northeastern (approximately 1 mile northeast of Wilson Pass) and south central (Table Mountain) areas of the site. Both of these sites had aboveground fuel storage tanks for emergency power generators. Visual inspection of the tanks and the soil surrounding the tanks did not reveal any evidence of leaking fuel from the tanks.

7. CONCLUSIONS AND RECOMMENDATIONS

Ninyo & Moore has performed a Phase I ESA in general conformance with the scope and limitations of ASTM Practice E 1527-00 of the property proposed to be used for the Table Mountain Wind Power Project near Goodsprings, Nevada. Any exceptions to, or deletions from, this practice are described in Section 8 of this report. This assessment has revealed no evidence of recognized environmental conditions in connection with the property and no additional assessment is recommended at this time.

8. LIMITATIONS AND EXCEPTIONS OF THE ASSESSMENT

The opinions and recommendations presented in this report are based upon the results of a site reconnaissance and a review of available background information. The scope of this evaluation did not include subsurface exploration, soil or water sampling, asbestos sampling, or chemical analysis.

The opinions presented herein apply to site conditions existing at the time of our Phase I ESA, and cannot be taken to apply to site changes or conditions of which we are not aware and/or have not had the opportunity to evaluate.

This document is intended to be used in its entirety. No portion of the document, by itself, is designed to completely represent any aspect of the project described herein. Ninyo & Moore should be contacted if the reader requires any additional information, or has questions regarding project information, or the content, interpretations presented, or completeness of this document.

Opinions and judgments expressed herein, which are based on our understanding and interpretation of current regulatory standards, should not be construed as legal opinions. In the event conditions change from those described in this Phase I ESA, Ninyo & Moore reserves the right to review such conditions and to modify, as appropriate, the assessments and conclusions provided in this report.

8.1. Nevada Certified Environmental Manager

In accordance with the Nevada Revised Statutes 459.500, Section 1, a holder of a certificate who is responsible for a service requiring certification shall ensure that each document relating to the service includes the following language:

I, Robert M. Troisi, hereby certify that I am responsible for the services described in this document and for the preparation of this document. The services described in this document have been provided in a manner consistent with the current standards of the profession and to the best of my knowledge comply with all applicable federal, state, and local statutes, regulations, and ordinances.

Robert M. Troisi, C.E.M.
Certified Environmental Manager
No. 1247
Expires: January 5, 2003

Date

9. REFERENCES AND AGENCY CONTACTS

Aerial Photographs, Table Mountain, Nevada, 1974, 1:48,000, U.S. Bureau of Land Management.

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USGS, Goodsprings, Nevada, Provisional Edition 1989, Quadrangle 7.5-Minute Series, Topographic Map.

USGS, Shenandoah Peak, Nevada - California, Provisional Edition 1985, Quadrangle 7.5-Minute Series, Topographic Map.

USGS, Cottonwood Pass, Nevada, Provisional Edition 1989, Quadrangle 7.5-Minute Series, Topographic Map.

USGS, Potosi, Nevada, Provisional Edition 1984, Quadrangle 7.5-Minute Series, Topographic Map.

APPENDIX A

Environmental Database Report

APPENDIX B
Photographic Documentation

Appendix H

Visual Resources

Form 8400-4
September (1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date April 17, 2001
District Las Vegas
Resource Area Spring Mountains
Activity (program)

SECTION A. PROJECT INFORMATION

1. Project Name Table Mtn Wind Gen Facility
2. Key Observation Point #1 – Jean, Nevada
3. VRM Class Class II and III

4. Location
Township
Range
Section

5. Location Sketch

SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Bold, flat, smooth, simple, strip	Indistinct, patchy, irregular	
LINE	Simple, hard, bold, smooth	Soft, irregular, weak	
COLOR	Dark tans and browns	Dark greens and browns	
TEXTURE	Smooth, uniform, fine	Smooth, fine, patchy	

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Horizontal (Pads) Curving (Roads)		Linear, vertical, narrow
LINE	Bold, curving		Regular, vertical
COLOR	Brown, tan		White, off-white
TEXTURE	Smooth, continuous		Ordered, dotted

SECTION D. CONTRAST RATING ☐ SHORT TERM ☐ LONG TERM

1. FEATURES

DEGREE OF CONTRAST	LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
ELEMENTS	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
Form				√				√			√	
Line				√				√		√		
Color				√				√			√	
Texture				√				√		√		

2. Does project design meet visual resource management objectives? ☐ Yes ☒ No **(Explain on reverse side)**

3. Additional mitigating measures recommended ☐ Yes ☒ No **(Explain on reverse side)**

Evaluator's Names Devon Muto
Date April 17, 2001

Comments from Item 2.

The Shenandoah and Wilson Pass (Potosi) areas are VRM Class II and Table Mountain is VRM Class III, all these areas are readily seen from this area.

VRM Class II Objective is to retain the existing character of the landscape. The level of actions may not modify existing landscapes or attract the attention of casual viewers. change to the characteristic landscape should be low. Management activities may be seen, but should not attract attention of the casual observer. Changes must repeat the basic element of form, line, color and texture found in the predominant natural features of the characteristic landscape. BLM Management Directive is to manage to retain the landscape's existing character where authorized

The VRM Class III Objective is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic element found in the predominant natural features of the characteristic landscape. BLM Management Directive is partial retention of the existing character of the landscape, where, authorized actions may alter the existing landscape, but not to the extent that they attract or focus attention of the casual viewer.

As contrast is strong for the some elements, the project is determined inconsistent for this KOP for both VRM Class II and Class III.

Additional Mitigating Measures (See Item 3)

Due to topography and their locations, the distribution lines, the substation, the new and improved access roads would either not be visible or would be only minimally visible from this KOP. The WTGs would be the most visible part of the project at this KOP.

Altering locations of WTGs would not be effective at reducing impacts because they would just be moved into a viewshed of a different KOP. Coloration may slightly reduce some impacts such as using a grey, but it WTG will still have the same general contrast and visibility.

Form 8400-4
September (1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

Date April 17, 2001

District Las Vegas

Resource Area Spring Mountains

Activity (program)

SECTION A. PROJECT INFORMATION

1. Project Name Table Mtn Wind Gen Facility

2. Key Observation Point #2 – Goodsprings, Nevada

3. VRM Class Class II and III

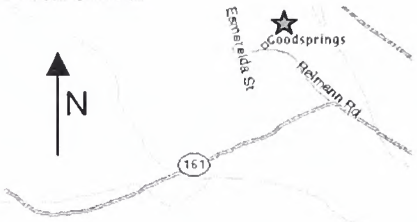
4. Location

Township 24S

Range 58E

Section 26

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Bold, rolling, smooth	Complex, indistinct, irregular, patches	
LINE	Simple, hard, bold, smooth, undulating	Diffuse, complex, soft, irregular, weak	
COLOR	Light to dark tans and brown	Light and dark greens and browns	
TEXTURE	Patchy, fine, smooth	Gradation, medium to coarse, patchy	

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Horizontal (Pads) Curving (Roads)		Linear, vertical, narrow
LINE	Bold, curving		Regular, vertical
COLOR	Brown, tan		White, off-white
TEXTURE	Smooth, continuous		Ordered, dotted

SECTION D. CONTRAST RATING ☐ SHORT TERM ☐ LONG TERM

1. FEATURES

DEGREE OF CONTRAST	LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
ELEMENTS: Form			√					√	√			
Line			√					√	√			
Color			√					√			√	
Texture				√				√	√			

2. Does project design meet visual resource management objectives? ☐ Yes ☒ No (Explain on reverse side)

3. Additional mitigating measures recommended ☐ Yes ☒ No (Explain on reverse side)

Evaluator's Names Devon Muto

Date April 17, 2001

SECTION D. CONTINUED

Comments from Item 2.

The Shenandoah and Wilson Pass (Potosi) areas are VRM Class II and Table Mountain is VRM Class III, all these areas are readily seen from this area.

VRM Class II Objective is to retain the existing character of the landscape. The level of actions may not modify existing landscapes or attract the attention of casual viewers. change to the characteristic landscape should be low. Management activities may be seen, but should not attract attention of the casual observer. Changes must repeat the basic element of form, line, color and texture found in the predominant natural features of the characteristic landscape. BLM Management Directive is to manage to retain the landscape's existing character where authorized

The VRM Class III Objective is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic element found in the predominant natural features of the characteristic landscape. BLM Management Directive is partial retention of the existing character of the landscape, where, authorized actions may alter the existing landscape, but not to the extent that they attract or focus attention of the casual viewer.

As contrast is strong for the some elements, the project is determined inconsistent for this KOP for both VRM Class II and Class III.

Additional Mitigating Measures (See Item 3)

Due to topography and their locations, the distribution lines, the substation, the new and improved access roads would either not be visible or would be only minimally visible from this KOP. The WTGs would be the most visible part of the project at this KOP.

Altering locations of WTGs would not be effective at reducing impacts because they would just be moved into a viewshed of a different KOP. Coloration may slightly reduce some impacts such as using a grey, but it WTG will still have the same general contrast and visibility.

Form 8400-4
September (1985)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

VISUAL CONTRAST RATING WORKSHEET

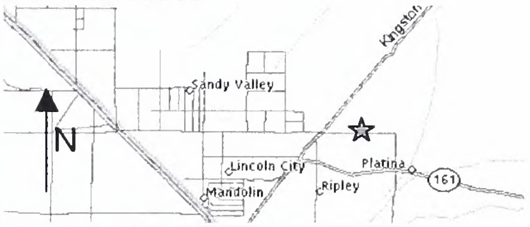
Date April 17, 2001
District Las Vegas
Resource Area Spring Mountains
Activity (program)

SECTION A. PROJECT INFORMATION

1. Project Name Table Mtn Wind Gen Facility
2. Key Observation Point #3 – Sandy Valley, Nevada
3. VRM Class Class II and III

4. Location
Township 25S
Range 57E
Section 4

5. Location Sketch



SECTION B. CHARACTERISTIC LANDSCAPE DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Bold, rolling, smooth	Complex, indistinct, irregular, patches	
LINE	Simple, hard, bold, smooth, undulating	Diffuse, complex, soft, irregular, weak	
COLOR	Light to dark tans and brown	Light and dark greens and browns	
TEX-TURE	Patchy, fine, smooth	Gradation, medium to coarse, patchy	

SECTION C. PROPOSED ACTIVITY DESCRIPTION

	1. LAND/WATER	2. VEGETATION	3. STRUCTURES
FORM	Horizontal (Pads) Curving (Roads)		Linear, vertical, narrow
LINE	Bold, curving		Regular, vertical
COLOR	Brown, tan		White, off-white
TEX-TURE	Smooth, continuous		Ordered, dotted

SECTION D. CONTRAST RATING ☐ SHORT TERM ☐ LONG TERM

1. FEATURES

DEGREE OF CONTRAST	LAND/WATER BODY (1)				VEGETATION (2)				STRUCTURES (3)			
	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None	Strong	Moderate	Weak	None
ELEMENTS: Form			√					√	√			
Line			√					√	√			
Color			√					√			√	
Texture				√				√	√			

2. Does project design meet visual resource management objectives? ☐ Yes ☒ No
(Explain on reverse side)

3. Additional mitigating measures recommended
☐ Yes ☒ No **(Explain on reverse side)**

Evaluator's Names	**Date**
Devon Muto	April 17, 2001

Comments from Item 2.

The Shenandoah and Wilson Pass (Potosi) areas are VRM Class II and Table Mountain is VRM Class III, all these areas are readily seen from this area.

VRM Class II Objective is to retain the existing character of the landscape. The level of actions may not modify existing landscapes or attract the attention of casual viewers. change to the characteristic landscape should be low. Management activities may be seen, but should not attract attention of the casual observer. Changes must repeat the basic element of form, line, color and texture found in the predominant natural features of the characteristic landscape. BLM Management Directive is to manage to retain the landscape's existing character where authorized

The VRM Class III Objective is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic element found in the predominant natural features of the characteristic landscape. BLM Management Directive is partial retention of the existing character of the landscape, where, authorized actions may alter the existing landscape, but not to the extent that they attract or focus attention of the casual viewer.

As contrast is weak to moderate for the (wind turbine generators) WTGs of the Proposed Facility, the project is determined consistent with Class III for this KOP but inconsistent for Class II.

Additional Mitigating Measures (See Item 3)

Due to distances and topography, most portions of the proposed project would not be visible: the distribution lines, the substation, the new and improved access roads. At this KOP, the only portion of the proposed project that would be visible would be the WTGs.

Due to the distance from the project site and the relatively long portion of the I-15 that would be moderately affected color and location related mitigation measures would not be effective for this KOP. Because there are no lighting plans, lighting could be an issue, but due to the distance, is it very unlikely.

Comments from Page 2.
The Shenandoah and Wilson Run
Class III, all these areas are

VRM Class II Objective is to
indicate they not readily
to the characteristic land
should not attract attention
of form, line, color and
landscape. BLM Manage
character unless mitigated

The VRM Class III Objective
level of change to the character
may attract attention but
should repeat the basic elements
characteristic landscape. BLM
character of the landscape,
not to the extent that they attract

As spelled in order to mitigate
Facility, the project is
Class II

Additional Mitigating Measures (See item 1)
Due to distance and topography
visible, the distribution line,
NSF, the only portion of the

Due to the distance from the
would be moderately affected
effective for the NSF. Because
due to the distance, it is only